

Wheaton Parking Study



Montgomery County, Maryland

Prepared by

ATCS, P.L.C.

for

Montgomery County Department of Public Works

and

Transportation Division of Operations/Parking Operations

Date of Report: *January 8, 2008*

Table of Contents

Executive Summary	3
Study Area	4
Figure 1: Map of the study area	4
Zonal Study Area	5
Figure 2: Map of TAZs and Sectors in the study area	5
Project Implementation.....	6
Task A: Parking Inventory.....	6
A.1: Inventory of current parking facilities	6
Figure A.1.1: GPS equipment utilized by ATCS.....	6
Figure A.1.2: GPS layer showing parking lot spaces in lots and on-street parking	7
A.2: Occupancy Survey	7
Table A.2.1: Sample occupancy survey sheet	8
A.3: Task Inputs from the County	9
Figure A.3.1: Study area and corresponding TAZs	9
A.4: Future Developments.....	10
Figure A.4.1: Land use patterns in the Wheaton Parking District	10
Task B: Analysis	11
B.1: Occupancy Analysis Model	11
Table B.1.1: Derived fields in the project.....	11
Figure B.1.1: Occupancy versus time of day.....	11
Table B.1.2: Sample occupancy analysis worksheet	13
B.2: Current Parking Adequacy.....	14
Table B.2.1: Current status of parking facilities per Sector.....	14
Figure B.2.1: Demand for parking in each TAZ.....	16
B.3: Comparison with Previous Studies.....	16
Figure B.3.1: Plot showing parking supply over last 10 years	17
Table B.3.1: Occupancy comparison at various times of the day.....	17
B.4: Parking Demand Model and Projection	18
Figure B.4.1: Flowchart showing the methodology for demand projection	18
Table B.4.1: Sample parking demand projection.....	19
Figure B.4.2: Increase in parking demand per TAZ through 2030.....	20
Task C: Driveway Counts.....	20
Task D: Staff Training.....	20
Conclusions and Recommendations	21
Appendix A: Attribute List.....	23
Appendix B: Public Facilities Occupancy Analysis (Weekday).....	28
Appendix C: Private Facilities Occupancy Analysis (Weekday).....	138
Appendix D: Study Comparison.....	140
Appendix E: Parking Demand Projection.....	144
Appendix F: Excel Templates - Instructions	149
Appendix G: Access Database - Instructions	153

Executive Summary

Wheaton, Maryland is strategically located just a few miles north of Washington, DC. Wheaton's location has enabled it to be a vital business and residential community for more than 50 years. Parking has become an issue in Wheaton as a result of high population growth rates and a rise in employment. A prior parking study for Wheaton Parking District, completed in 1996, anticipated continued growth in population and employment in the Wheaton area. Forecasts of household population and employment show a projected increase of 10.6% and 16.6% respectively by 2030.

Montgomery County has recognized that adequate parking facilities are imperative to supporting the economy of the Wheaton Central Business District (hereinafter referred to as the study area). With projected increases in population and employment, along with the existing parking concerns raised by the public, the services of STS and their subcontractor ATCS, P.L.C. were requested to quantify the necessary parking supply to address the future parking demand in the Wheaton Parking District.

ATCS collected data in the study area during a weeklong period in May 2007. Data collected from the parking inventory was incorporated into three different formats (and templates) including:

- An illustrative Geographic Information Systems (GIS) interactive map of parking facilities within the study area;
- Numerous Excel spread sheets which capture occupancy survey data; and
- An MS Access database which incorporates both the GIS and Excel data into one reader-friendly database.

Following data collection, an analysis was performed to determine occupancy and turnover rates per parking facility and Traffic Analysis Zone (TAZ). The data collection was compared with three previous studies performed over the past 25 years on the parking facilities within Wheaton. ATCS also met with several forecast specialists with the County to determine land use patterns, which correlate with parking demand in the District.

The following study provides analysis, and recommendations, as well as maps of the study area. The report breaks down the project implementation into four tasks:

Task A: Parking Inventory

Task B: Analysis

Task C: Driveway Counts

Task D: Staff Training

The study team has also made few recommendations such as:

- Increasing parking space in Zone 81,
- Utilizing Existing garage and Increase in parking lots spaces
- Upgrading the parking meter system.

Complete survey data, directions on how to use the spreadsheet, Access database, and other source files are provided in the appendices.

Study Area

The following map shows all the public parking facilities owned and maintained by the County within the study area... A total of five (5) lots, 38 on-street parking sections, and one (1) garage, were surveyed by ATCS for inventory and occupancy analysis. Inventory of private parking lots has also been updated by ATCS as a part of the project.

Study Area	Number of spaces
Garages	637
Parking Lots	429
On-Street Parking	397 (383 after 4p.m.)
Total spaces in study area	1463 (1449 after 4p.m.)



Figure 1: Map of the study area

Zonal Study Area

To quantify employment growth in the study area, ATCS used Traffic Analysis Zones (TAZs) to correspond with the format of the employment forecast data from Maryland-National Capital Park and Planning Commission (MNCPPC). Wheaton Parking District is comprised of four (4) sectors and three (3) TAZs, shown in Figure 2. The reader should note that TAZ 81 is comprised of Sectors 3 and 4, and TAZs 83 and 84 consists of Sector 1 and Sector 2.

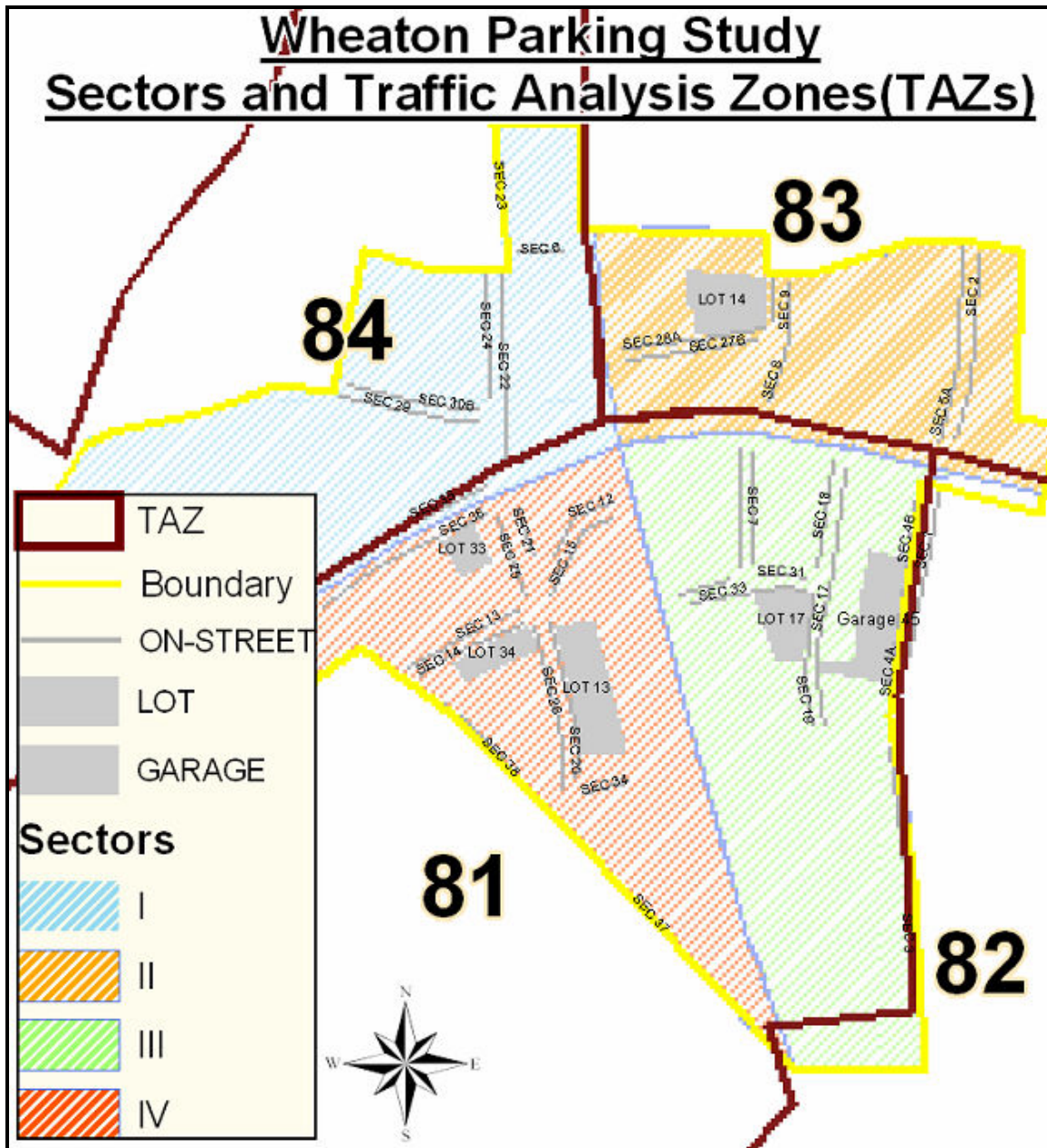


Figure 2: Map of TAZs and Sectors in the study area

Project Implementation

Task A: Parking Inventory

A.1: Inventory of current parking facilities

The exact location of each parking space within the parking surface lots and on-street parking was collected using a GPS 1200 device with an accuracy of 0.5 foot. The northing and easting coordinates of all spaces were collected and automatically loaded into GIS format. The surveyor entered values of attributes, such as meter type, meter number, notes, etc., using the key pad. The GPS equipment used by ATCS for the inventory survey is shown in Figure A.1.1.



Figure A.1.1: GPS equipment utilized by ATCS

To maintain data consistency, the attribute list and the possible values for each field have been pre-entered into the GPS device. The surveyor picks the value while on site for each parking space. The data is converted into shape files and imported directly into ArcGIS avoiding any manual data entry. The list of the attributes, associated description and syntax can be found in Appendix A.

All parking spaces in each of the lots and on-street parking within the study area are geo-referenced, along with the attributes values. Garage 45 was not surveyed due to the lack of capability in GIS to display three-dimensional data effectively. For private parking lots, aerial photos of 2006 and other GIS data were used to assess the total private spaces in the study area. The layers obtained through a GPS survey can be found in the shapefiles labeled “lot_specific” and “on-street_specific.” Figure A.1.2 shows the GPS survey layer in ArcGIS.

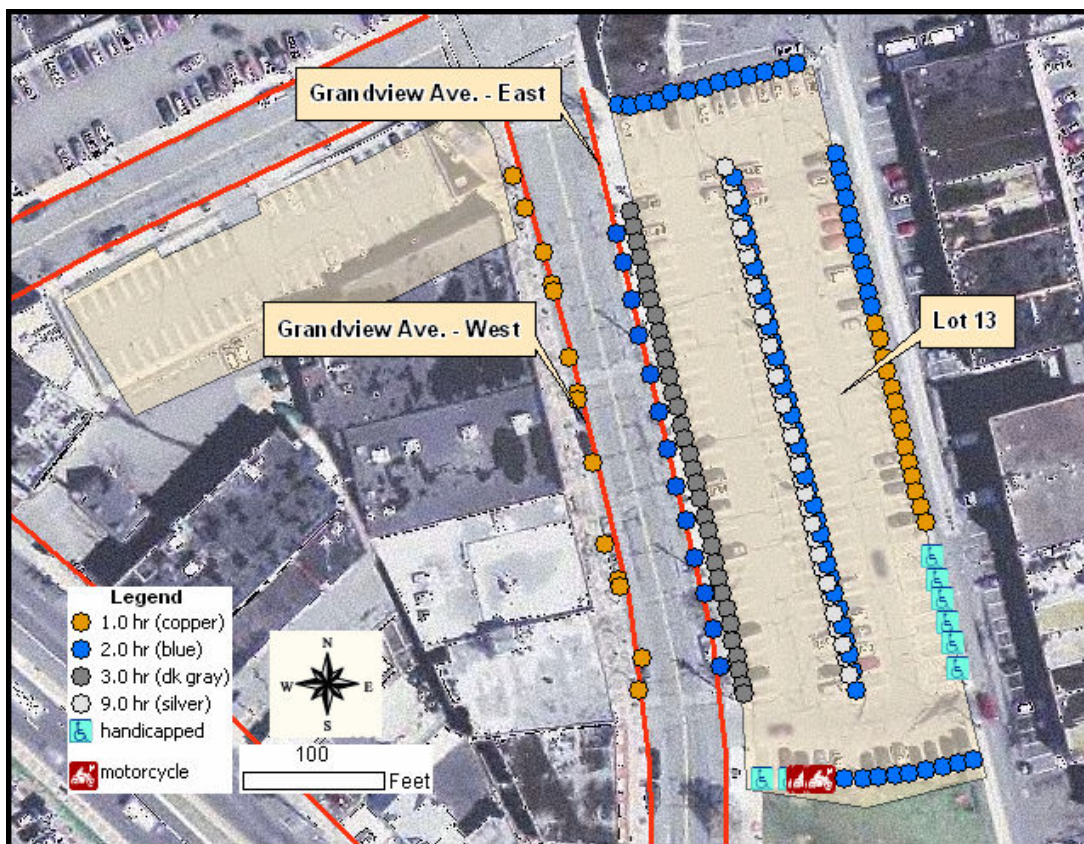


Figure A.1.2: GPS layer showing parking lot spaces in lots and on-street parking

A.2: Occupancy Survey

An occupancy survey was conducted simultaneously to analyze current parking utilization. Counts were recorded every 30 minutes on weekdays and hourly on weekends for all public parking facilities. Occupancy of private lots has been determined during peak times between 10:30 a.m.-11:00 a.m. or 1:30 p.m.-2:00 p.m. Table A.2.1 shows a sample survey sheet used to record the occupancy.

A.3: Task Inputs from the County

This section documents the baseline information used to develop this study. The following information was gathered by ATCS for this work effort:

1. Previous Studies – The parking study performed by Desman Associates in 1994 was provided by the County.
2. GIS Data – GIS layers with footprints of lots, garages, on-street parking, and aerial photos with basic attributes were available. Supporting GIS layers including streets, buildings, Traffic Analysis Zones (TAZs), and property lines have also been used in the study. Figure A.3.1 shows the TAZs within the study area.

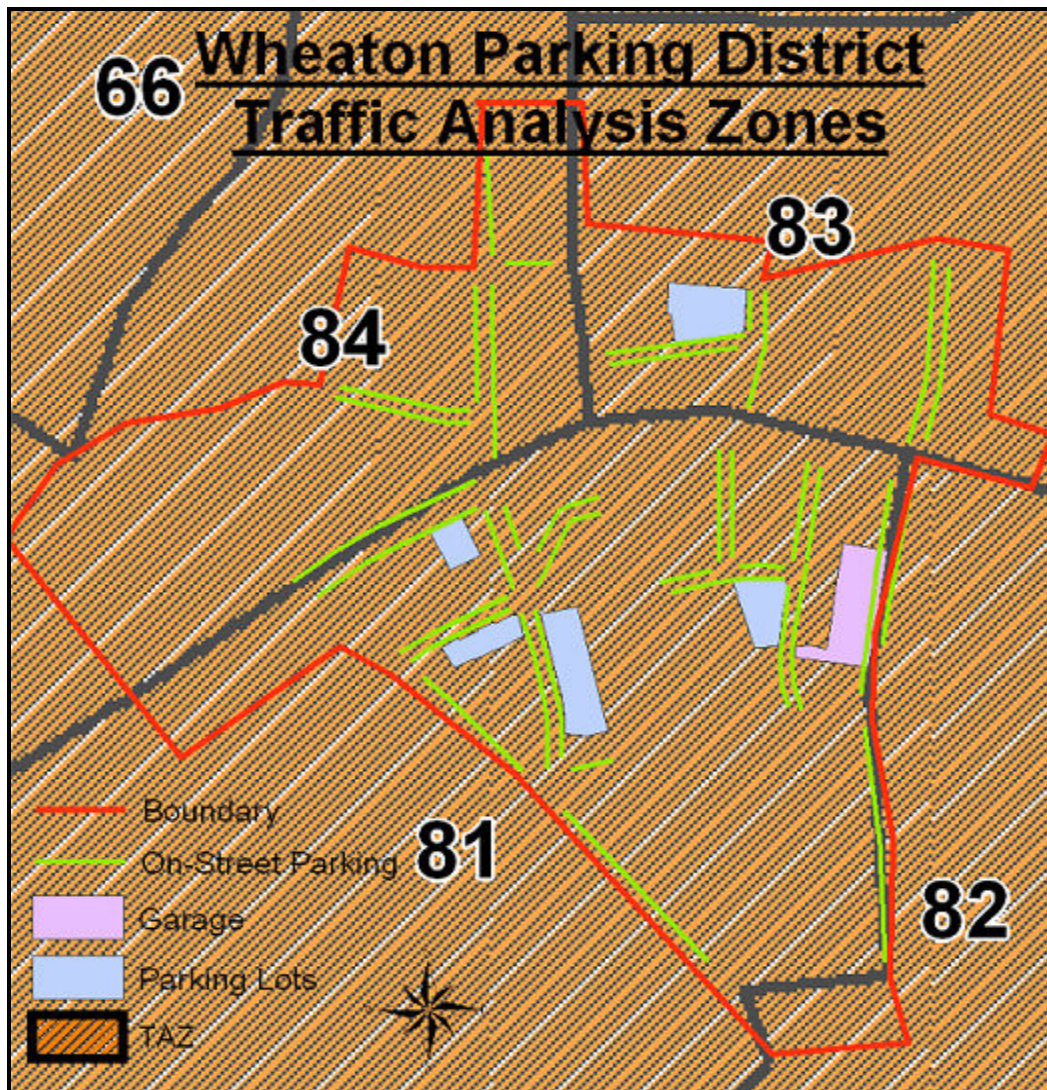


Figure A.3.1: Study area and corresponding TAZs

3. Employment Forecast – MNCPPC data for the Wheaton district, for the years 2005, 2010, 2015, 2020, 2025, and 2030, were obtained in order to develop the demand projection model.

A.4: Future Developments

The employment forecasts, described above, were used as the basis of the predicting future parking demand. In addition, zoning layers were used to study land use patterns in the Wheaton Parking District. A majority of the study area shown in Figure A.4.1 consists of commercial developments, including retail stores, restaurants, and businesses. The area is mostly built-out with no prospects for new major developments. A 3.659 acre retail development proposed to the north of Georgia Ave./Blueridge Ave. is an exception. Refer [Conclusions and Recommendations](#) for proposed developments and their impact on parking in sector 4 (TAZ 81).

ATCS met with MNCPPC planning experts to locate any major changes in land use or employment opportunities within and around the Wheaton Parking District. Demand projection and further analysis has been presented in section B.4.

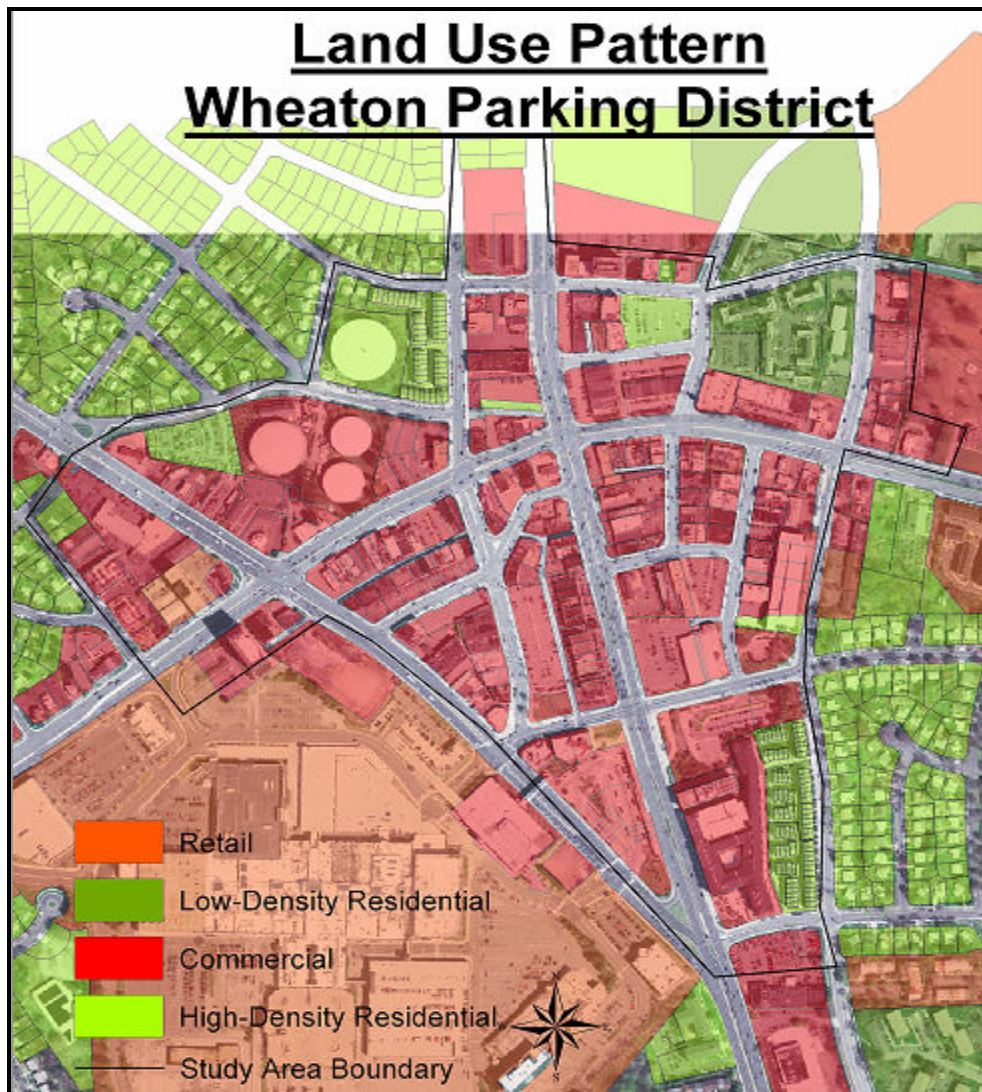


Figure A.4.1: Land use patterns in the Wheaton Parking District

Task B: Analysis

B.1: Occupancy Analysis Model

From the occupancy data for each parking space, peak occupancy, average occupancy, turnover (number of vehicles per space per day), and average duration have been calculated for off-street and on-street parking based on the meter type. This information was used to assess the efficiency and demand at each parking facility. Attributes that were derived (computed) from occupancy data are tabulated in Table B.1.1. below.

Table B.1.1: Derived fields in the project

Occupancy at various times of the day were plotted to identify the peak occupancy. Figure B.1.1 shows a plot of occupancy versus time of the day.

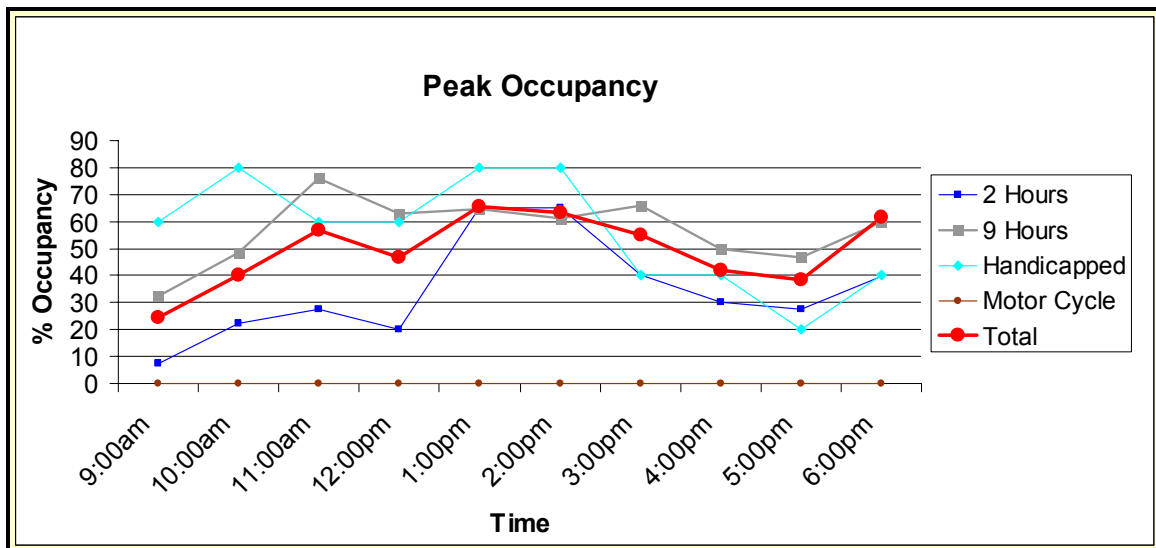


Figure B.1.1: Occupancy versus time of day

Analysis of Peak Occupancy Chart

Occupancy counts for the study area were recorded every thirty minutes during the week and every hour on the weekend. Figure B.1.1 shows above, you will see that the peak times of usage were from 1:30 p.m. to 2:30 p.m. Usage decreases after this time and then peaks again at 6p.m. During peak times, parking spaces were 60-65% occupied.

- **TWO HOUR PARKING SPACES (Blue Line)**
During the morning hours, occupancy of two hour parking spaces does not exceed 30%. During the 1:30 p.m. to 2:30 p.m. timeframe, occupancy increases to 65% and then declines until 6p.m., when occupancy reaches 40% of available spaces.
- **NINE HOUR PARKING SPACES (Gray Line)**
By 11:30 a.m., about 75% of nine hour parking spaces are occupied. The occupancy slightly declines throughout the day with a slight increase at 3:30p.m. and 6p.m.
- **MOTORCYCLE (Brown Line)**
During the period of study, many of the motorcycle spaces were not utilized, resulting in negligible occupancy numbers.
- **HANDICAPPED (Turquoise Line)**
Handicapped spaces in the study area reached 80% occupancy in peak times of usage.

The final worksheet shown in Table B.1.2 (next page) has been created to analyze the overall level of occupancy and the nature of the parking demand in the area.

High ‘average turnover’ in a parking lot implies higher demand for short-term parking. Parking facilities with ‘average parking duration’ more than the maximum parking duration can be associated with users parking for more than the allotted time without paying. Similarly, a small gap between the peak and average occupancy at which the parking facility is occupied for most of the day, is an indication of high daily demand.

An occupancy analysis model has been created in Excel to perform these analyses upon entering the survey information. Detailed instructions on this model have been provided in Appendix F. All the analyses can be viewed and edited from the Access application as well. Refer to Appendix G for instructions on using the Access application.

B.2: Current Parking Adequacy

Since a majority of the study area’s parking facilities fall under the commercial category, both weekday as well as weekend analysis was performed to capture parking needs. The peak and average occupancy of the facilities was examined to identify facilities operating at or near capacity.

In this study, a portion of the parking capacity has been at 85% occupancy, also known as practical occupancy. Beyond this level of occupancy, users find it difficult to locate an empty parking space, resulting in increased traffic circulation and levels of frustration. The current supply and demand for all the parking facilities have been presented in Table B.2.1.

Table B.2.1: Current status of parking facilities per Sector

Sector	TAZ	Facility	WEEKDAY		WEEKEND	
			Peak	Average	Peak	Average
1	84	Sec 23	8%	4%	8%	3%
		Sec 6	17%	1%	0%	0%
		Sec 24	58%	24%	92%	66%
		Sec 22	79%	37%	92%	34%
		Sec 29	22%	9%	33%	7%
		Sec 30a	15%	3%	31%	7%
		Sec 30b	17%	1%	83%	20%
2	83	Lot 14	77%	55%	47%	55%
		Sec 2	100%	54%	89%	46%
		Sec 5a	100%	56%	100%	75%
		Sec 5b	100%	37%	54%	28%
		Sec 8	40%	9%	80%	22%
		Sec 9	56%	4%	56%	35%
		Sec 10	100%	76%	60%	38%
		Sec 27a	40%	2%	80%	20%
		Sec 27b	40%	14%	40%	16%
		Sec 28a	100%	38%	75%	39%
		Sec 28b	33%	6%	83%	26%

Table B.2.1: Current status of parking facilities per Zone

Sector	TAZ	Facility	WEEKDAY		WEEKEND	
			Peak	Average	Peak	Average
4	81	Lot 13	77%	62%	88%	68%
		Lot 33	79%	55%	87%	54%
		Lot 34	76%	61%	76%	69%
		Sec 12	60%	46%	80%	44%
		Sec 13	90%	29%	90%	74%
		Sec 14	80%	38%	90%	58%
		Sec 15	100%	59%	100%	68%
		Sec 20	85%	47%	69%	55%
		Sec 21	100%	67%	100%	64%
		Sec 25	100%	83%	100%	74%
		Sec 26	71%	55%	93%	60%
		Sec 34	100%	76%	100%	33%
		Sec 35	31%	5%	69%	31%
		Sec 36	69%	25%	92%	35%
		Sec 37	100%	45%	100%	43%
		Sec 38	100%	56%	100%	71%
3	81	Lot 17	71%	39%	58%	33%
		Garage 45	62%	57%		
		Sec 3	62%	48%	72%	53%
		Sec 4a	80%	59%	13%	8%
		Sec 4b	67%	18%	100%	30%
		Sec 7	100%	72%	100%	62%
		Sec 11	100%	53%	100%	71%
		Sec 16	100%	62%	90%	44%
		Sec 17	55%	20%	36%	19%
		Sec 18	100%	61%	89%	65%
		Sec 19	23%	6%	31%	10%
		Sec 31	100%	31%	100%	41%
		Sec 32	100%	53%	100%	40%
		Sec 33	100%	29%	100%	38%
	82	Sec 1	29%	15%	0%	0%

	Parking available at all times of the day
	Parking not available during 1-2 peak hours. Relatively free at all other times
	Parking not available during various times of the day. Free spaces available during some times of the day
	Parking not available most of the day. Free spaces rarely available

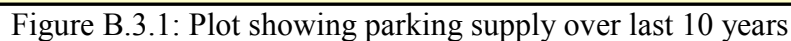
The geographic distribution of the parking facilities in each TAZ, shown in Figure B.2.1, is color coded based on the occupancy. Wheaton Parking District has four TAZs, 81, 82, 83, and 84. Most of the heavily occupied parking facilities are located in Zone 81, where there are retail stores, a metro station, restaurants, and small businesses.

[illegible]

B.3: Comparison with Previous Studies

ATCS[®], P.L.C.
ENGINEERING • PLANNING • SURVEYING

Parking studies done in 1995 and 1997 were performed only for Wheaton Market Place, bordered by University Boulevard, Veirs Mill Road, and Georgia Avenue. To be able to compare the inventory and occupancy over the last 10 years, only market place data has been used from the parking study done by ATCS in 2007. The overall supply has increased by 28% over the last 10 years, as shown in Figure B.3.1. The demand has increased almost proportionally, keeping the overall occupancy levels same or slightly lesser than the past. Refer to Appendix D for detailed statistics. Since 1996, though public on-street parking decreased by 8%, an increase in the public off-street and private parking has alleviated this deficit. As a result, the 1997 peak occupancy of public on-street parking of 100% came down to 77% in 2007. Table B.3.1 shows a comparison of the occupancy for public on-street parking on Saturday.

[illegible]

The format shown in Table B.3.1 was used to match the format of the previous studies provided by the County. The reader should be informed that this method of presenting information is generic and does not provide individual facility variations. For example, though the percent occupancy always appears to be less than the practical capacity of 85%, some lots are operating at capacity. Generic representation in this table does not reflect these statistics, as some lots and garages with lower occupancies have been included in the average. It is recommended to view the detailed analysis in Appendix B for each parking facility.

B.4: Parking Demand Model and Projection

Generally, residential and commercial parking are planned based on the population growth and employment forecasts. The parking demand forecast for this study is based on growth in employment forecasts, rather than population growth due to the commercial nature of the study area.

Data on the growth in the number of jobs in office, retail, industrial, and other sectors was obtained from M-NCPPC staff. The amount of office space to account for the number of employees was then calculated with the help of Montgomery County planning experts. The office space requirements were then converted into corresponding parking spaces. The projection was done using TAZs to coordinate with the format of the input data from MNCPPC. The flowchart in Figure B.4.1 shows the sequence and methodology used for parking demand projection.

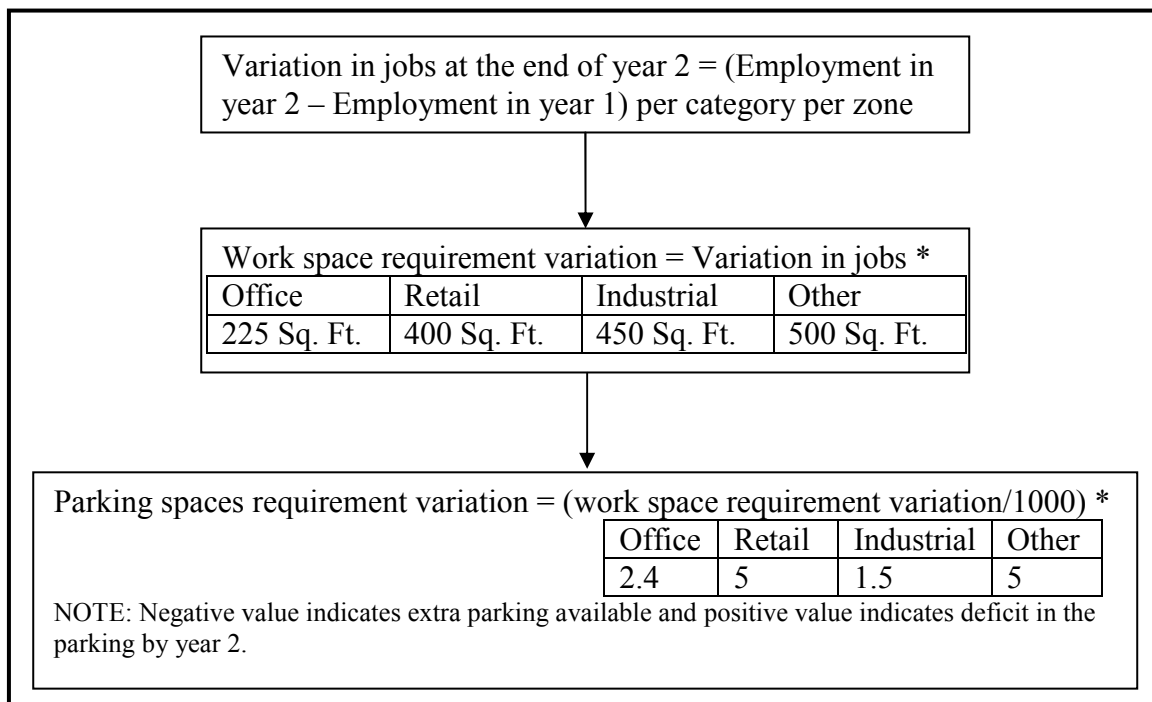


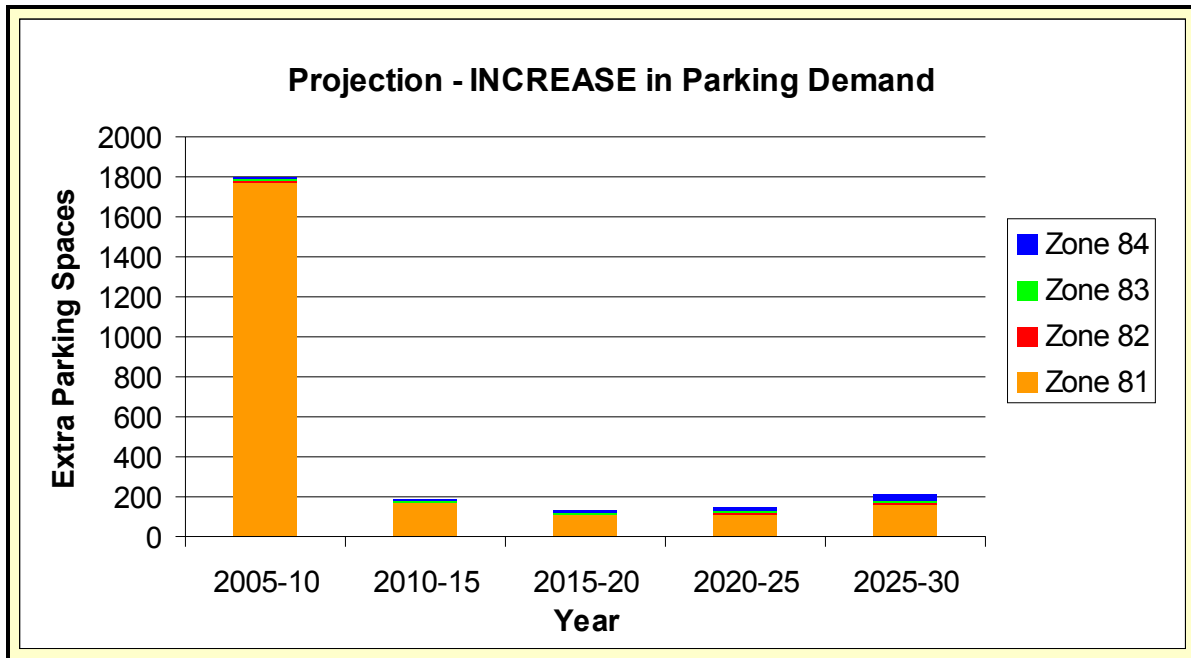
Figure B.4.1: Flowchart showing the methodology for demand projection

Table B.4.1 provides a sample projection for the year 2010. An Excel template has been developed calculating extra parking spaces required with employment data. A plot showing the increase in the parking demand per TAZ is presented in Figure B.4.1.

Table B.4.1: Sample parking demand projection

81	7,875	351,200	0	0						
82	225	400	450	500						
83	900	800	0	0						
84	1,350	1,200	0	0						
Source:	The Maryland-National Capital Park and Planning Commission - Montgomery Planning Department									
Traffic Zone	Parking spaces Increase between 2005-2010									
	Office	Retail	Industrial	Other	Total					
81	19	1756	0	0	1775					
82	1	2	1	3	6					
83	2	4	0	0	6					
84	3	6	0		9					
Source:	County Code, Division 59-E-3									

Refer to Appendix E to view forecast through 2030.



NOTE: 90% of the demand between 2005-10 has already occurred by the time of the study (2007)

Figure B.4.2: Increase in parking demand per TAZ through 2030

A steep increase in parking demand has been projected for the year 2010 in TAZ 81. About 99% of the demand in Zone 81 is due to the growth of the retail sector, primarily in the Wheaton Plaza Sector. However, 90% of the growth has already occurred by 2007 when the study was performed. The forecast predicts that Zones 82, 83, and 84 will not experience a substantial increase in parking demand in the near future.

Task C: Driveway Counts

In an attempt to validate the parking space occupancy, ten (10) driveway locations were identified and counters were setup at three (3) of these locations. The counter sensors failed to pick up data due to low traveling speeds and frequent stops made by passing motor vehicles. Due to this technical difficulty in obtaining valid data, driveway counts have been temporarily stopped and removed from the scope of work. The budget of the parking study has been adjusted accordingly.

Task D: Staff Training

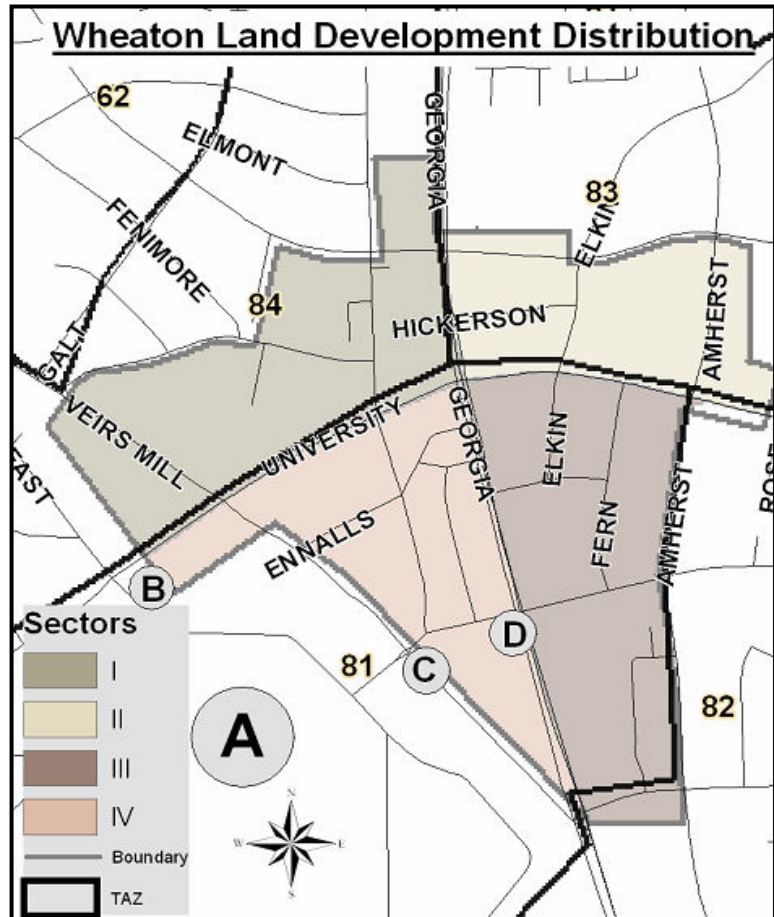
Montgomery County staff will be trained by ATCS to use the demand analysis model, GIS data / applications, and access application. Refer to Appendix F and Appendix G for detailed instructions on Excel spreadsheets and the Access application.

Conclusions and Recommendations

Based on the analysis outlined in this study, ATCS offers the following key findings and recommendations:

- (1) Based on the employment forecasts provided by M-NCPPC, the current public parking facilities in the business and industrial areas are expected to adequately manage the projected growth of 0-1%. The current average peak occupancy levels of zones 81, 82, 83, 84 being 84%, 30%, 71%, and 48% respectively, an increase in the demand can be easily sufficed.
- (2) Land use development and corresponding demand projection based on the data from M-NCPPC:

- The net growth in the parking demand for every 5 years is less than 1% in zones 82, 83, and 84.
- Zone 81, consisting sectors III and IV, showed a growth of 20% in retail sector between 2005 and 2010. However, 97% of this retail growth has already occurred in the Wheaton plaza recently (2007), shown at location A in the figure, and is assumed to have been addressed in the development review process of Montgomery County.
- Office buildings at locations B, C, and D contribute to 3% increase in parking demand in zone 81 over the next 30



years. This growth is concentrated at three locations on University Boulevard, Veirs Mill Road, and Georgia Avenue in sector IV. ATCS has observed a current occupancy of 96% in the private lots near the office buildings on University Boulevard. Similarly 60% occupancy was observed in lots on Georgia Avenue. Hence, the County should closely monitor the parking demand and supply around

these three sites to prevent parking deficit in future. This should be addressed though the development review process.

- (3) Two public parking areas operate at capacity for a majority of the weekdays: Lot 13 and Section 25 on Grandview Avenue, between Ennalls Street and University Boulevard. These locations should be examined further by the County to understand the specific demand requirements on the spaces and potential for other public parking to absorb the demand.
- (4) In four areas, handicap spaces are often near or at full capacity. For Lot 33 and Lot 13, the County should monitor the use of these facilities and ensure the retail area is fully accessible. Additionally, Garage 45 and Lot 17 handicapped spaces are at 80% to 100% capacity for several hours of the day (1p.m.-4p.m.). Montgomery County should assess the benefit of converting additional parking spaces to handicapped users, as the facilities are currently under-utilized.

Appendix A: Attribute List

On Street – General					
GIS Field	General Name	Datatype	Description	Syntax	Example
Section_ID	Section ID	Text	Primary Key. This exists for on-street specific layer also to link back to this layer	S<#>	S23
Street_loc	Street location	Text	Name of the street	<name>	Grandview Avenue
St_block	Street block	Text	Enclosing street names	<name> to <name>	Ennalls Ave to Reddie Dr
Side	Side	Text	Side of the parking on the street	<direction> side	North side, South side, West side or East side
District	District	Text	Wheaton	<name>	Wheaton, Silver Spring, Bethesda or Montgomery Hills
TERM	Term	Text	Short-term (3 hrs or less) or Long-term (> 3 hrs) parking	<name>-term	Short-term, Long-term
Duration	Duration	Text	Maximum duration of parking in hours	<#> Hour	12 Hour
30minSpace	1/2 Hr Spaces	Short Integer	Number of spaces	<##>	
30mnPerOcc	1/2 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
30mins_TO	1/2 Hr Turn Over Rate	Float	Vehicles per parking spot	<#. ##>	
1HrSpaces	1 Hr Spaces	Short Integer	Number of spaces	<##>	
1HrPerOcc	1 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
1Hr_TO	1 Hr Turn Over Rate	Float	Vehicles per parking spot	<#. ##>	
2HrSpaces	2 Hr Spaces	Short Integer	Number of spaces	<##>	
2HrPerOcc	2 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
2Hr_TO	2 Hr Turn Over Rate	Float	Vehicles per parking spot	<#. ##>	
3HrSpaces	3 Hr Spaces	Short Integer	Number of spaces	<##>	
3HrPerOcc	3 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
3Hr_TO	3 Hr Turn Over Rate	Float	Vehicles per parking spot	<#. ##>	
9HrSpaces	9 Hr Spaces	Short Integer	Number of spaces	<##>	
9HrPerOcc	9 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
9Hr_TO	9 Hr Turn Over Rate	Float	Vehicles per parking spot	<#. ##>	
12HrSpaces	12 Hr Spaces	Short Integer	Number of spaces	<##>	
12HrPerOcc	12 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
12Hr_TO	12 Hr Turn Over Rate	Float	Vehicles per parking spot	<#. ##>	
HandicapSp	HC Hr Spaces	Short Integer	Number of spaces	<##>	
HcPerOcc	HC Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
HC_TO	HC Hr Turn Over Rate	Float	Vehicles per parking spot	<#. ##>	
OtherSp	Other Spaces	Short Integer	Number of spaces	<##>	

OthrPerOcc	Other percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
Othr_TO	Other Turn Over Rate	Float	Vehicles per parking spot	<#.##>	
TotSpaces	Total Spaces	Short Integer	Number of spaces	<##>	
Tot_Occ	Total Occupancy	Long Integer	Demand for parking	<#####>	
Tot_Aval	Total Availability	Long Integer	Capacity of parking lot	<#####>	
TotPer_Occ	Total percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
Turn_Over	Total Turn Over Rate	Short Integer	Vehicles per parking spot	<#.##>	
AvgDuratio	Average Duration	Short Integer	Average time of parking	<#.##>	
TY_OF_OP	Type of Operation	Text		<name>	Metered
Rate	Rate	Float		<#.##>	0.35
Op_Hours	Operational hours	Text		<time>-<time>	9a.m.-6p.m.
Op_Days	Operational days	Text		<day>-<day>	Monday-Saturday
SurveyDate	Date of survey	Text	Date of the occupancy survey done by ATCS	mm/dd/yyyy	07/07/2007

On Street - Specific					
GIS Field	General Name	Datatype	Description	Syntax	Example
Section_ID	Section ID	Text	Primary Key. This exists for on-street specific layer also to link back to this layer	S<#>	S23
TERM	Term	Text	Short-term (3 hrs or less) or Long-term (> 3 hrs) parking	<name>-term	Short-term, Long-term
Duration	Duration	Text	Maximum duration of parking in hours	<#> Hour	12 Hour
Spot_ID	Spot ID	Integer	Meter number	<##>	24
Restrictio	Restriction	Text	No parking restrictions, if any	<text>	No Parking 4p.m.-6p.m., none
Point_ID	Point ID	Integer	Automatically added by GPS		
Point_Code	Point Code	Text	Automatically added by GPS - serial number	<text>	
Type	Type	Text	Parking method description	<text>	Pull In, Parallel, Diagonal, Other
Notes	Notes	Text	Data collector can make additional notes.	<text>	"missing meter head"
Easting_Lo	x- coordinate	Double	Automatically added by GPS - Location		1297365.506
Northing_L	y- coordinate	Double	Automatically added by GPS - Location		500085.9983

Lots - General					
GIS Field	General Name	Datatype	Description	Syntax	Example
Name	Lot Name	Text	Name of the lot	<name>	Market place lot
Number	Lot number	Long Integer	Primary Key. This exists for on-street specific layer also to link back to this layer	LOT <##>	LOT 13
URL	URL	Text	A link for lot details on County website		http://www.dpw.t.com/parking/lot13.htm
Address	Address	Text	Address		
30minSpace	1/2 Hr Spaces	Short Integer	Number of spaces	<##>	
30mnPerOcc	1/2 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
30mins_TO	1/2 Hr Turn Over Rate	Float	Vehicles per parking spot	<#.##>	
1HrSpaces	1 Hr Spaces	Short Integer	Number of spaces	<##>	
1HrPerOcc	1 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
1Hr_TO	1 Hr Turn Over Rate	Float	Vehicles per parking spot	<#.##>	
2HrSpaces	2 Hr Spaces	Short Integer	Number of spaces	<##>	
2HrPerOcc	2 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
2Hr_TO	2 Hr Turn Over Rate	Float	Vehicles per parking spot	<#.##>	
3HrSpaces	3 Hr Spaces	Short Integer	Number of spaces	<##>	
3HrPerOcc	3 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
3Hr_TO	3 Hr Turn Over Rate	Float	Vehicles per parking spot	<#.##>	
9HrSpaces	9 Hr Spaces	Short Integer	Number of spaces	<##>	
9HrPerOcc	9 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
9Hr_TO	9 Hr Turn Over Rate	Float	Vehicles per parking spot	<#.##>	
12HrSpaces	12 Hr Spaces	Short Integer	Number of spaces	<##>	
12HrPerOcc	12 Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
12Hr_TO	12 Hr Turn Over Rate	Float	Vehicles per parking spot	<#.##>	
HandicapSp	HC Hr Spaces	Short Integer	Number of spaces	<##>	
HcPerOcc	HC Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
HC_TO	HC Hr Turn Over Rate	Float	Vehicles per parking spot	<#.##>	
MtrcySp	MC Hr Spaces	Short Integer	Number of spaces	<##>	
MC_PerOcc	MC Hr percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
MC_TO	MC Hr Turn Over Rate	Float	Vehicles per parking spot	<#.##>	
OtherSp	Other Spaces	Short Integer	Number of spaces	<##>	
OthrPerOcc	Other percentage of occupancy	Short Integer	Average percentage of occupancy	<##>	
Othr_TO	Other Turn Over Rate	Float	Vehicles per parking spot	<#.##>	

TotSpaces	Total Spaces	Short Integer	Number of spaces	<##>
Tot_Occ	Total Occupancy	Long Integer	Demand for parking	<#####>
Tot_Aval	Total Availability	Long Integer	Capacity of parking lot	<#####>
TotPer_Occ	Total percentage of occupancy	Short Integer	Average percentage of occupancy	<##>
Turn_Over	Total Turn Over Rate	Short Integer	Vehicles per parking spot	<#.##>
AvgDuratio	Average Duration	Short Integer	Average time of parking	<#.##>
TY_OF_OP	Type of Operation	Text		<name>
Rate	Rate	Float		<#.##>
Op_Hours	Operational hours	Text		<time>-<time>
Op_Days	Operational days	Text		<day>-<day>
PavemtCond	Pavement Condition	Text		<name>
SurveyDate	Date of survey	Text	Date of the occupancy survey done by ATCS	mm/dd/yyyy
				07/07/2007

Lots - Specific

GIS Field	General Name	Datatype	Description	Syntax	Example
Lot_ID	Lot ID	Text	Primary Key. This exists for on-street specific layer also to link back to this layer	LOT <#>	LOT 13
TERM	Term	Text	Short-term (3 hrs or less) or Long-term (> 3 hrs) parking	<name>-term	Short-term, Long-term
Duration	Duration	Text	Maximum duration of parking in hours	<#> Hour	12 Hour
Spot_ID	Spot ID	Integer	Meter number	<##>	24
Point_ID	Point ID	Integer	Automatically added by GPS		
Point_Code	Point Code	Text	Automatically added by GPS - serial number	<text>	
Type	Type	Text	Parking method description	<text>	Pull In, Parallel, Diagonal, Other
Notes	Notes	Text	Data collector can make additional notes.	<text>	"missing meter head"
Easting_Lo	x- coordinate	Double	Automatically added by GPS - Location		1297365.506
Northing_L	y- coordinate	Double	Automatically added by GPS - Location		500085.9983

Appendix B: Public Facilities Occupancy Analysis (Weekday)

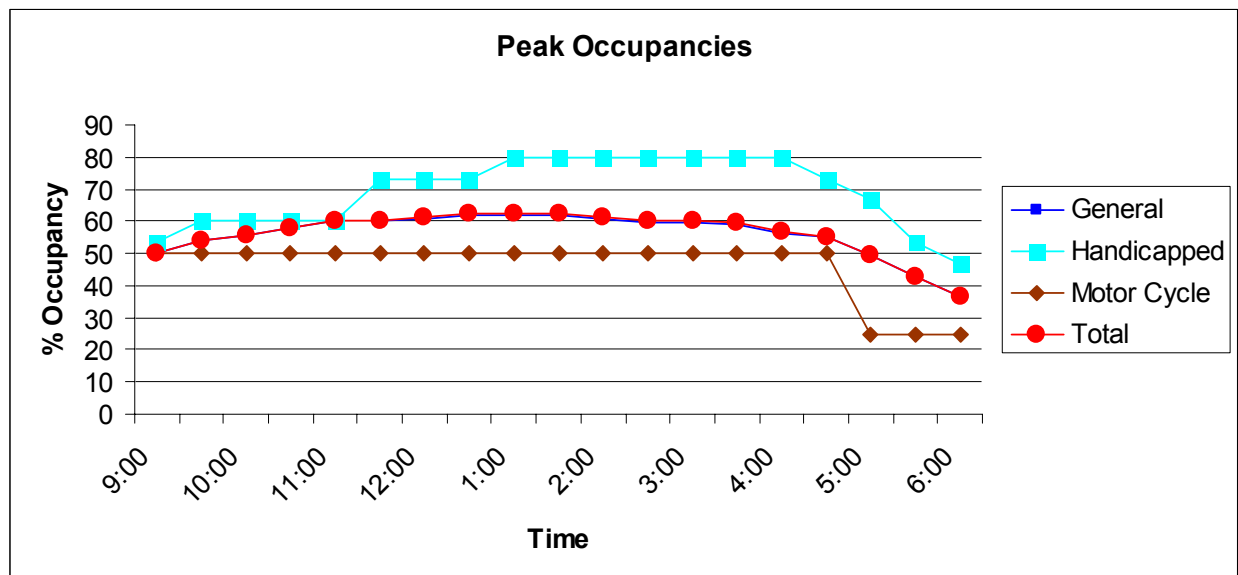
Refer to the CD provided to the county for weekend data

Occupancy - Time of Day - Garage 45

DATE: 6/7/2007

TOD	Number of Vehicles				Total % Occupied			
	General (618)	HC (15)	MC (4)	Total (637)	General (618)	HC (15)	MC (4)	Total (637)
9:00	309	8	2	319	50	53	50	50
9:30	334	9	2	345	54	60	50	54
10:00	345	9	2	356	56	60	50	56
10:30	358	9	2	369	58	60	50	58
11:00	371	9	2	382	60	60	50	60
11:30	372	11	2	385	60	73	50	60
12:00	377	11	2	390	61	73	50	61
12:30	384	11	2	397	62	73	50	62
1:00	384	12	2	398	62	80	50	62
1:30	382	12	2	396	62	80	50	62
2:00	376	12	2	390	61	80	50	61
2:30	370	12	2	384	60	80	50	60
3:00	368	12	2	382	60	80	50	60
3:30	365	12	2	379	59	80	50	59
4:00	349	12	2	363	56	80	50	57
4:30	339	11	2	352	55	73	50	55
5:00	306	10	1	317	50	67	25	50
5:30	264	8	1	273	43	53	25	43
6:00	225	7	1	233	36	47	25	37

Indicates peak occupancy



Analysis - Garage 45														DATE: 6/7/2007	
Total Spaces: 637															
Operational Hrs: 9a.m.-6p.m. (9hrs)															
Total Availability= (Tot. spaces*Operational hrs) = 637*9 = 5733space-hrs															
Type	General				HC				MC				Total		
Spaces	618				15				4				637		
Availability	5562				135				36				5733		
Duration (Hrs)	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	5	1	2.5	0	0	0	0	0	0	0	0	0	5	1	2.5
1.00	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
1.50	2	0	3	0	0	0	0	0	0	0	0	0	2	0	3
2.00	11	3	22	0	0	0	0	0	0	0	0	0	11	3	22
2.50	3	1	7.5	0	0	0	0	0	0	0	0	0	3	1	7.5
3.00	6	1	18	0	0	0	0	0	0	0	0	0	6	1	18
3.50	6	1	21	0	0	0	0	0	0	0	0	0	6	1	21
4.00	12	3	48	0	0	0	0	0	0	0	0	0	12	3	48
4.50	11	3	49.5	0	0	0	0	0	0	0	0	0	11	3	49.5
5.00	16	4	80	1	8	5	5	0	0	0	0	0	17	4	85
5.50	15	4	82.5	0	0	0	0	0	0	0	0	0	15	3	82.5
6.00	10	2	60	0	0	0	0	0	0	0	0	0	10	2	60
6.50	5	1	32.5	2	17	13	13	0	0	0	0	0	7	2	45.5
7.00	27	6	189	0	0	0	0	0	0	0	0	0	27	6	189
7.50	16	4	120	1	8	7.5	7.5	0	0	0	0	0	17	4	127.5
8.00	25	6	200	2	17	16	16	1	50	8	8	8	28	6	224
8.50	55	13	467.5	1	8	8.5	8.5	0	0	0	0	0	56	13	476
9.00	196	46	1764	5	42	45	45	1	50	9	9	9	202	46	1818
Total	422	12	3168	12	95	95	95	2	47	17	436	3280	46	57	3280
Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100															
Avg. % occupancy	57				70				47				57		
Turn over = Tot. vehicles/ Tot. spaces															
Turn Over	0.68				0.80				0.50				0.68		
Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles															
Avg. Duration	7.51				7.92				8.50				7.52		

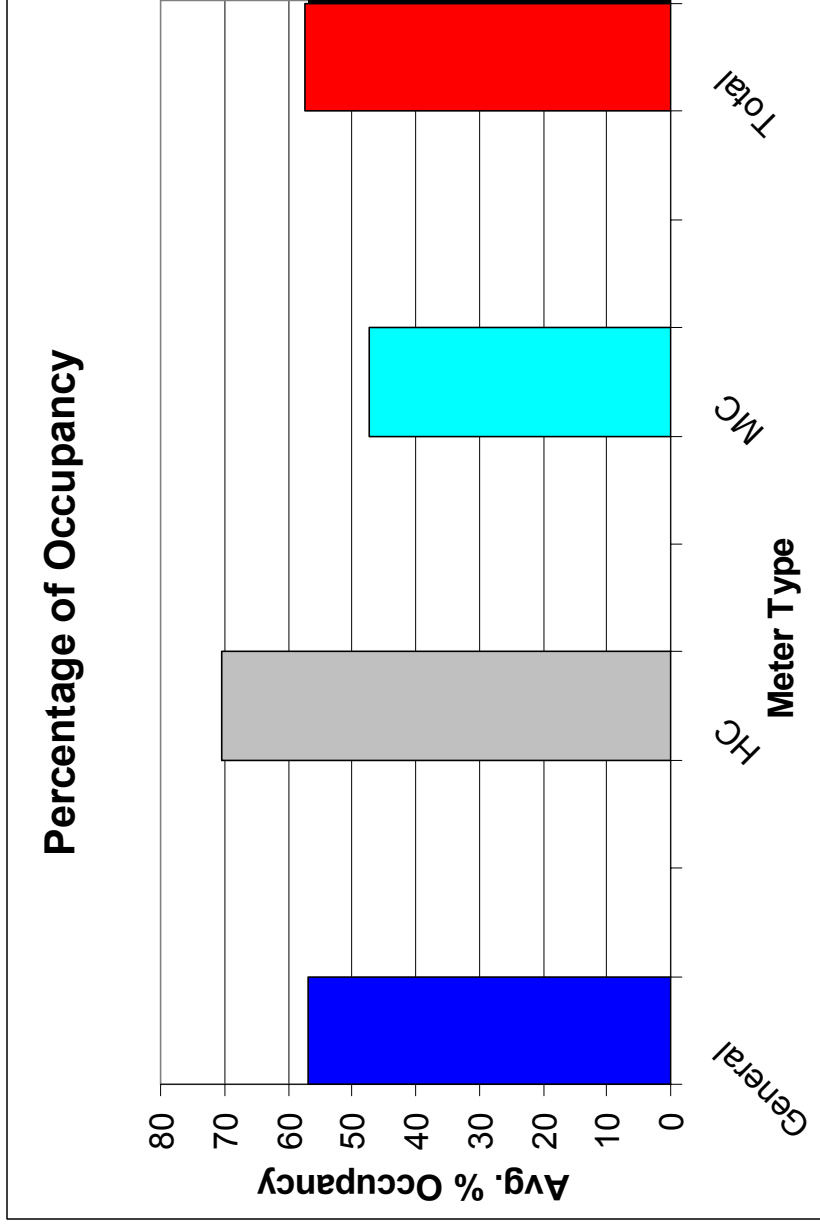


Figure B.1: Garage 45

Occupancy - Time of Day - Lot 13													DATE: 5/31/2007	
TOD	Number of Vehicles					TOD	% Occupied					Total % Occupied		
	Copper (23)	Blue (101)	Silver (26)	HC (8)	MC (4)		Total (162)	Copper (23)	Blue (101)	Silver (26)	HC (8)		MC (4)	
	1Hr	2Hrs	9Hrs	1Hr	2Hrs			9Hrs						
9:00a.m.	3	30	25	8	0	66	9:00a.m.	13	30	96	100	0	41	
9:30a.m.	3	41	26	8	0	78	9:30a.m.	13	41	100	100	0	48	
10:00a.m.	2	49	26	8	0	85	10:00a.m.	9	49	100	100	0	52	
10:30a.m.	3	48	25	8	0	84	10:30a.m.	13	48	96	100	0	52	
11:00a.m.	3	52	26	8	0	89	11:00a.m.	13	51	100	100	0	55	
11:30a.m.	3	67	26	8	0	104	11:30a.m.	13	66	100	100	0	64	
12:00p.m.	10	69	26	8	0	113	12:00p.m.	43	68	100	100	0	70	
12:30p.m.	10	56	26	8	0	100	12:30p.m.	43	55	100	100	0	62	
1:00p.m.	6	56	25	8	0	95	1:00p.m.	26	55	96	100	0	59	
1:30p.m.	8	53	26	7	0	94	1:30p.m.	35	52	100	88	0	58	
2:00p.m.	6	66	26	8	0	106	2:00p.m.	26	65	100	100	0	65	
2:30p.m.	9	73	26	8	0	116	2:30p.m.	39	72	100	100	0	72	
3:00p.m.	12	69	26	8	0	115	3:00p.m.	52	68	100	100	0	71	
3:30p.m.	11	60	24	7	0	102	3:30p.m.	48	59	92	88	0	63	
4:00p.m.	12	72	25	8	0	117	4:00p.m.	52	71	96	100	0	72	
4:30p.m.	12	79	26	7	0	124	4:30p.m.	52	78	100	88	0	77	
5:00p.m.	13	80	21	5	0	119	5:00p.m.	57	79	81	63	0	73	
5:30p.m.	9	63	20	5	0	97	5:30p.m.	39	62	77	63	0	60	
6:00p.m.	13	65	19	5	0	102	6:00p.m.	57	64	73	63	0	63	
	Indicates peak occupancy													

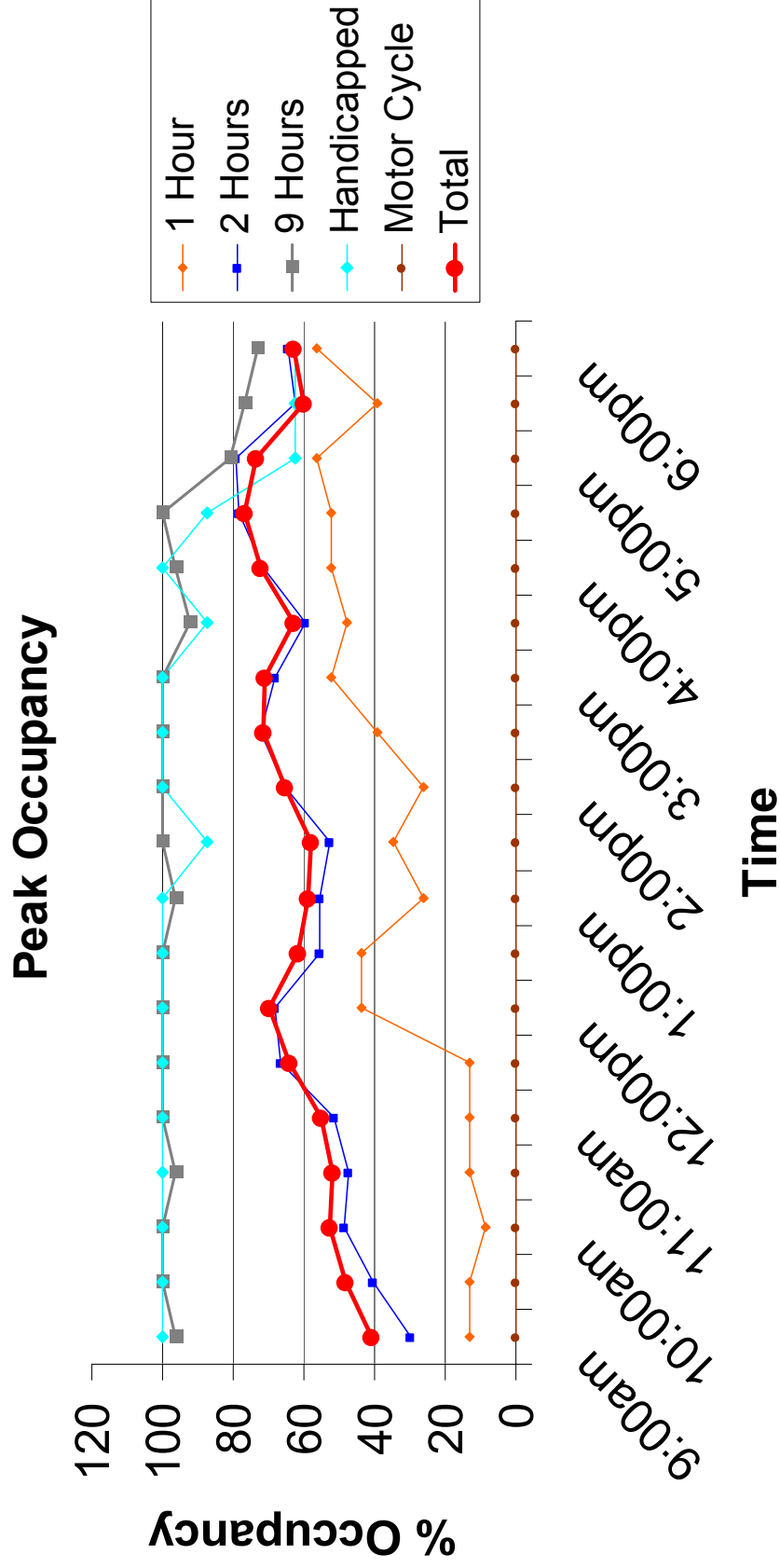


Figure B.2: Lot 13

Analysis - Lot 13 (excluding Handicapped and Motorcycles)													DATE: 5/31/2007		
Total Spaces: 162															
Meter types: 162 - 1, 2, 3, 9hr															
Operational Hrs: 9a.m.-6p.m. (9hrs)															
Total Availability= (Tot. spaces*Operational hrs)															
= 162*9 = 1458space-hrs															
Type	Copper (1Hr)				Blue (2Hrs)				Silver (9Hrs)				Total		
# Spaces	23				101				26				162		
Availability	207				909				234				1458		
Duration (Hrs)	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	53	62	26.5	209	48	104.5	7	13	3.5	270	46	135	46	135	135
1.00	26	30	26	91	21	91	5	9	5	123	21	123	21	123	123
1.50	3	3	4.5	42	10	63	5	9	7.5	50	9	75	9	75	75
2.00	2	2	4	37	9	74	3	6	6	43	7	86	7	86	86
2.50	0	0	0	13	3	32.5	3	6	7.5	17	3	42.5	3	42.5	42.5
3.00	1	1	3	7	2	21	2	4	6	10	2	30	2	30	30
3.50	1	1	3.5	8	2	28	2	4	7	11	2	38.5	2	38.5	38.5
4.00	0	0	0	10	2	40	1	2	4	12	2	48	2	48	48
4.50	0	0	0	3	1	13.5	2	4	9	6	1	27	1	27	27
5.00	0	0	0	2	0	10	0	0	0	2	0	10	0	10	10
5.50	0	0	0	3	1	16.5	2	4	11	6	1	33	1	33	33
6.00	0	0	0	1	0	6	2	4	12	3	1	18	1	18	18
6.50	0	0	0	1	0	6.5	4	8	26	6	1	39	1	39	39
7.00	0	0	0	0	0	0	2	4	14	2	0	14	0	14	14
7.50	0	0	0	0	0	0	3	6	22.5	4	1	30	1	30	30
8.00	0	0	0	1	0	8	5	9	40	8	1	64	1	64	64
8.50	0	0	0	0	0	0	1	2	8.5	2	0	17	0	17	17
9.00	0	0	0	3	1	27	4	8	36	8	1	72	1	72	72
Total	86		67.5	431		541.5	53		225.5	583		902		902	902
Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100															
Avg. % occupancy	33				60				96				62		
Turn over = Tot. vehicles/ Tot. spaces															
Turn Over	3.74				4.27				2.04				3.60		
Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles															
Avg. Duration	0.78				1.26				4.25				1.55		

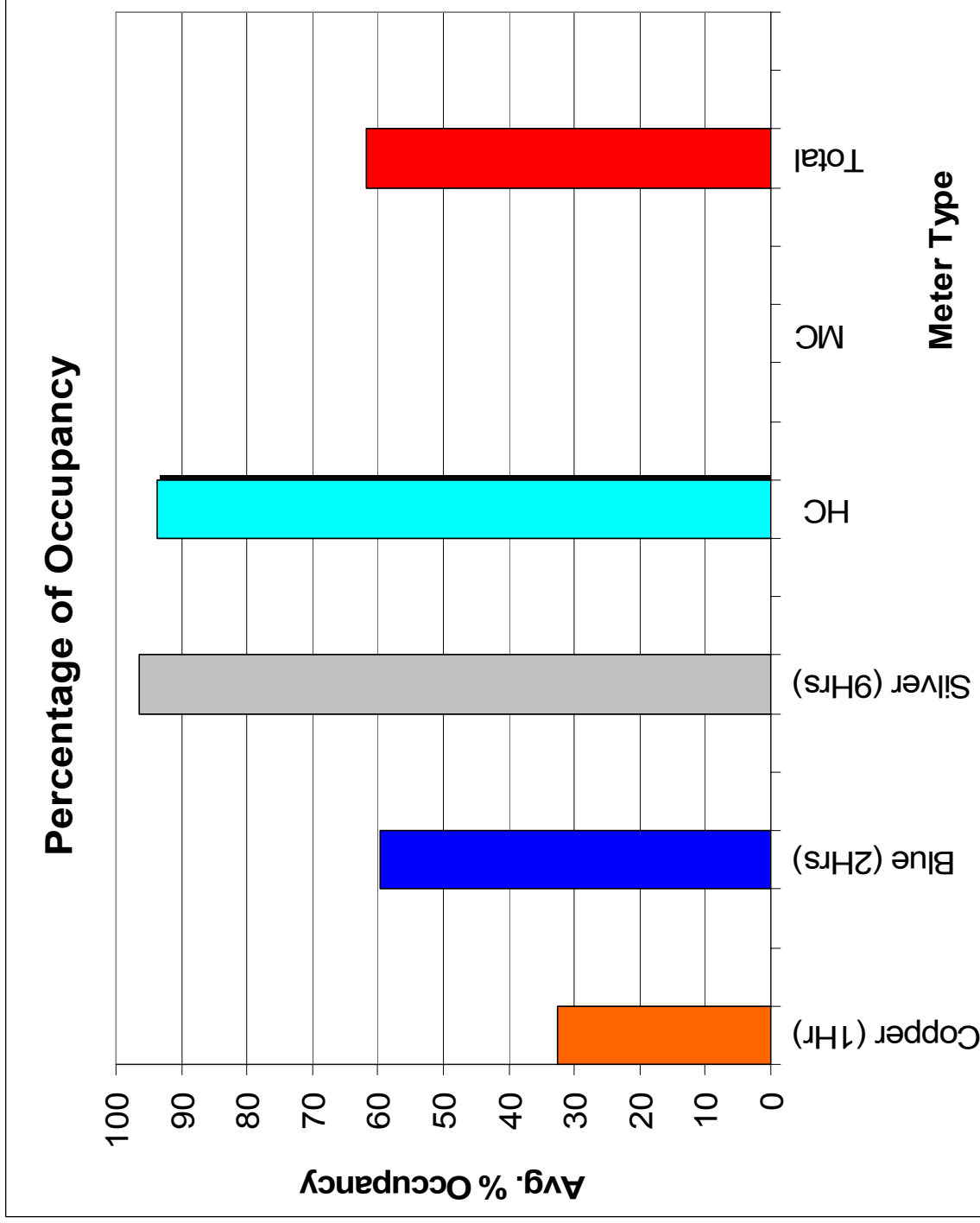


Figure B.3: Lot 13

Occupancy - Time of Day - Lot 14												DATE: 5/31/2007	
TOD	Number of Vehicles					TOD	% Occupied					Total % Occupied	
	Blue (40)	Silver (62)	HC (5)	MC (2)	Total (109)		Blue (40)	Silver (62)	HC (5)	MC (2)			
	2Hrs	9Hrs					2Hrs	9Hrs					
9:00a.m.	6	30	1	0	37	9:00a.m.	15	48	20	0	35		
9:30a.m.	8	31	1	0	40	9:30a.m.	20	50	20	0	37		
10:00a.m.	8	36	1	0	45	10:00a.m.	20	58	20	0	42		
10:30a.m.	7	45	1	0	53	10:30a.m.	18	73	20	0	50		
11:00a.m.	14	45	1	0	60	11:00a.m.	35	73	20	0	56		
11:30a.m.	15	47	2	0	64	11:30a.m.	38	76	40	0	60		
12:00p.m.	20	48	2	0	70	12:00p.m.	50	77	40	0	65		
12:30p.m.	22	55	2	0	79	12:30p.m.	55	89	40	0	74		
1:00p.m.	22	50	5	0	77	1:00p.m.	55	81	100	0	72		
1:30p.m.	23	56	3	0	82	1:30p.m.	58	90	60	0	77		
2:00p.m.	21	52	2	0	75	2:00p.m.	53	84	40	0	70		
2:30p.m.	15	52	3	0	70	2:30p.m.	38	84	60	0	65		
3:00p.m.	17	51	1	0	69	3:00p.m.	43	82	20	0	64		
3:30p.m.	10	48	2	0	60	3:30p.m.	25	77	40	0	56		
4:00p.m.	16	45	1	0	62	4:00p.m.	40	73	20	0	58		
4:30p.m.	7	33	1	0	41	4:30p.m.	18	53	20	0	38		
5:00p.m.	12	34	1	0	47	5:00p.m.	30	55	20	0	44		
5:30p.m.	11	26	1	0	38	5:30p.m.	28	42	20	0	36		
6:00p.m.	14	24	1	0	39	6:00p.m.	21	39	20	0	36		
Indicates peak occupancy													

Peak Occupancy

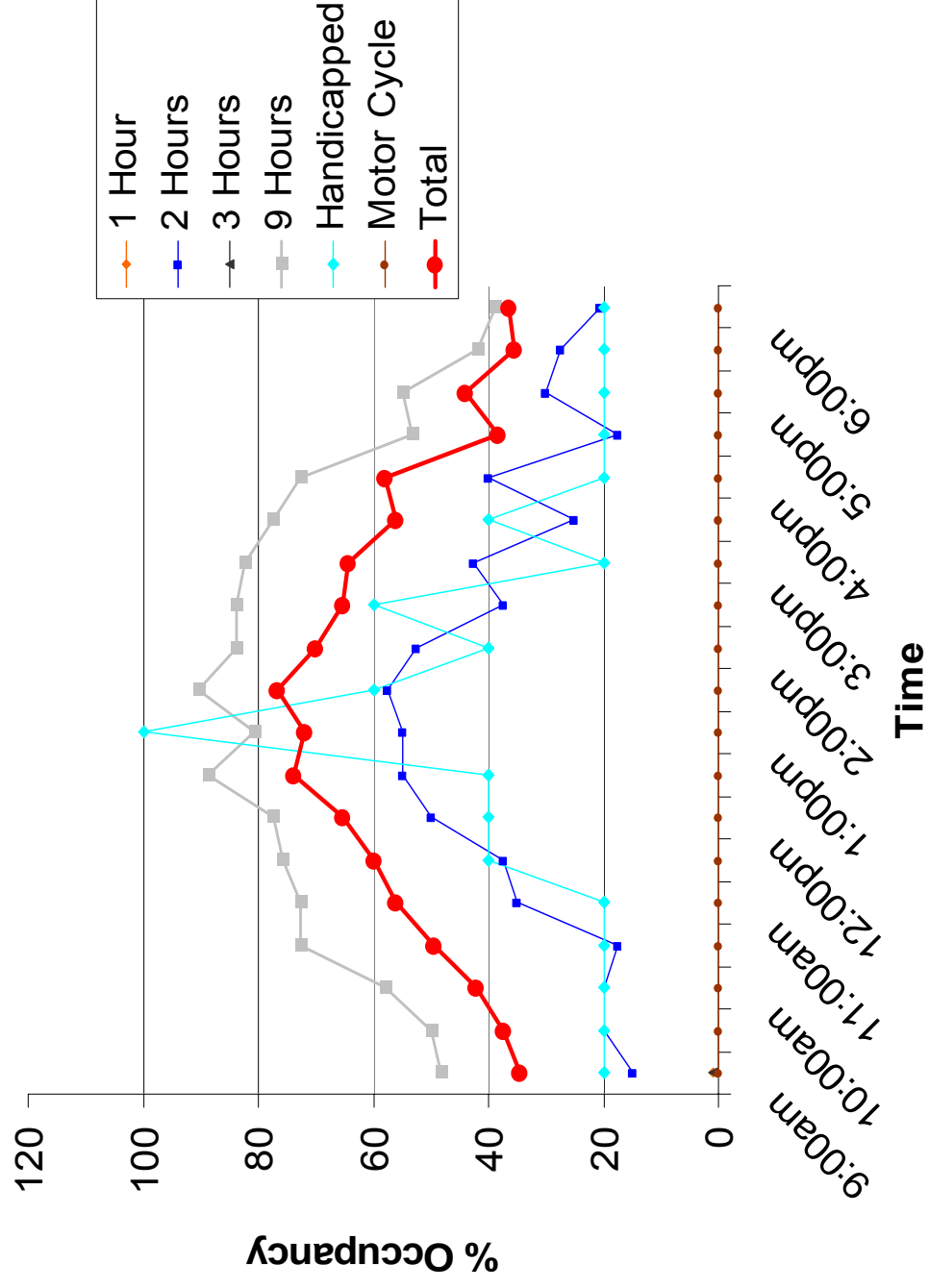


Figure B.4: Lot 14

Analysis - Lot 14 (excluding Motorcycles)													DATE: 5/31/2007	
Total Spaces: 108														
Meter types: 108 - 2,														
9hr														
Operational Hrs: 9a.m.-6p.m. (9hrs)														
Total Availability= (Tot. spaces*Operational hrs)														
= 108*9 = 972space-hrs														
Type	Blue (2Hrs)			Silver (9Hrs)			HC			Total				
# Spaces	40			62			5			109				
Availability	360			558			45			972				
Duration (Hrs)	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied		
0.50	65	49	32.5	24	19	12	3	38	1.5	92	35	46		
1.00	39	29	39	19	15	19	1	13	1	59	22	59		
1.50	21	16	31.5	12	10	18	1	13	1.5	34	13	51		
2.00	5	4	10	8	6	16	1	13	2	14	5	28		
2.50	2	2	5	6	5	15	1	13	2.5	9	3	22.5		
3.00	0	0	0	7	6	21	0	0	0	7	3	21		
3.50	0	0	0	4	3	14	0	0	0	4	2	14		
4.00	0	0	0	9	7	36	0	0	0	9	3	36		
4.50	0	0	0	5	4	22.5	0	0	0	5	2	22.5		
5.00	0	0	0	2	2	10	0	0	0	2	1	10		
5.50	0	0	0	2	2	11	0	0	0	2	1	11		
6.00	0	0	0	2	2	12	0	0	0	2	1	12		
6.50	0	0	0	0	0	0	0	0	0	0	0	0		
7.00	0	0	0	5	4	35	1	13	7	6	2	42		
7.50	0	0	0	11	9	82.5	0	0	0	11	4	82.5		
8.00	0	0	0	2	2	16	0	0	0	2	1	16		
8.50	1	1	8.5	4	3	34	0	0	0	5	2	42.5		
9.00	0	0	0	2	2	18	0	0	0	2	1	18		
Total	133		126.5	124		392	8		15.5	265		534		
Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100														
Avg. % occupancy	35			70			34			55				
Turn over = Tot. vehicles/ Tot. spaces														
Turn Over	3.33			2.00			1.60			2.43				
Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles														
Avg. Duration	0.95			3.16			1.94			2.02				

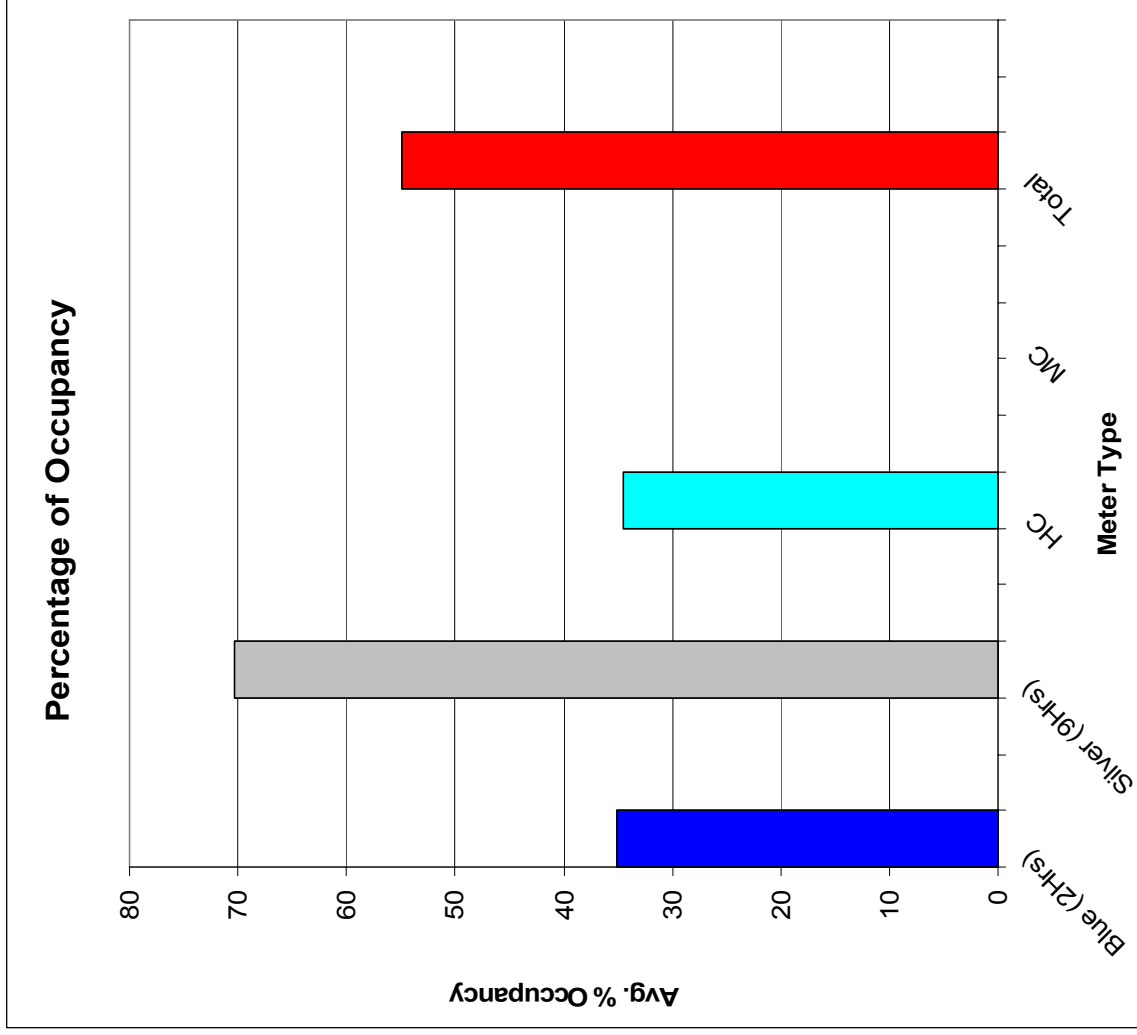


Figure B.5: Lot 14

Occupancy - Time of Day - Lot 17											DATE: 5/31/2007	
TOD	Number of Vehicles				TOD	% Occupied				Total % Occupied		
	Copper (11)	Blue (53)	HC (3)	MC (2)		Total (69)	Copper (11)	Blue (53)	HC (3)		MC (2)	
	1Hr	2Hrs					1Hr	2Hrs				
9:00a.m.	1	5	0	0	6	9:00a.m.	9	9	0	0	9	
9:30a.m.	1	15	2	0	18	9:30a.m.	9	28	67	0	26	
10:00a.m.	3	19	2	0	24	10:00a.m.	27	36	67	0	35	
10:30a.m.	2	18	2	0	22	10:30a.m.	18	34	67	0	32	
11:00a.m.	2	21	2	0	25	11:00a.m.	18	40	67	0	36	
11:30a.m.	1	27	3	0	31	11:30a.m.	9	51	100	0	45	
12:00p.m.	2	22	3	0	27	12:00p.m.	18	42	100	0	39	
12:30p.m.	4	33	3	0	40	12:30p.m.	36	62	100	0	58	
1:00p.m.	8	34	3	0	45	1:00p.m.	73	64	100	0	65	
1:30p.m.	8	38	3	0	49	1:30p.m.	73	72	100	0	71	
2:00p.m.	3	36	3	0	42	2:00p.m.	27	68	100	0	61	
2:30p.m.	3	12	1	0	16	2:30p.m.	27	23	33	0	23	
3:00p.m.	4	14	0	0	18	3:00p.m.	36	26	0	0	26	
3:30p.m.	3	12	0	0	15	3:30p.m.	27	23	0	0	22	
4:00p.m.	7	13	0	0	20	4:00p.m.	64	25	0	0	29	
4:30p.m.	6	14	0	0	20	4:30p.m.	55	26	0	0	29	
5:00p.m.	4	21	1	0	26	5:00p.m.	36	40	33	0	38	
5:30p.m.	6	27	2	0	35	5:30p.m.	55	51	67	0	51	
6:00p.m.	11	51	2	0	64	6:00p.m.	100	96	67	0	93	
	Indicates peak occupancy											

Peak Occupancy

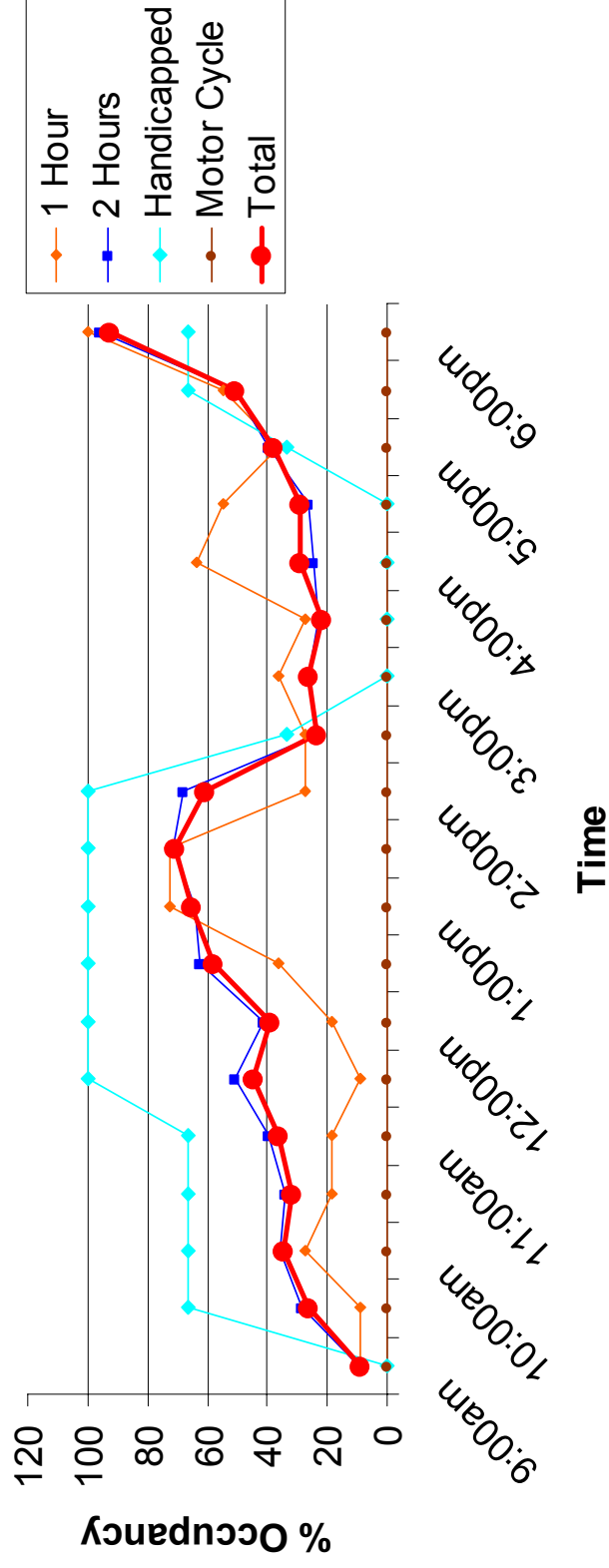


Figure B.6: Lot 17

Analysis – Lot 17													DATE: 5/31/2007	
Total Spaces: 69 Meter types: 69 – 1, 2hr Operational Hrs: 9a.m.-6p.m. (9hrs) Total Availability= (Tot. spaces*Operational hrs) = 69*9 = 621space-hrs														
Type	Copper (1Hr)				Blue (2Hrs)				HC		Total			
# Spaces	11				53				3		69			
Availability	99				477				27		621			
Duration (Hrs)	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied		
0.50	18	46	9	26	21	13	1	13	0.5	45	7	22.5		
1.00	15	38	15	37	30	37	2	25	2	54	8	54		
1.50	4	10	6	28	23	42	1	13	1.5	33	5	49.5		
2.00	2	5	4	7	6	14	0	0	0	9	1	18		
2.50	0	0	0	12	10	30	3	38	7.5	15	2	37.5		
3.00	0	0	0	4	3	12	0	0	0	4	1	12		
3.50	0	0	0	1	1	3.5	1	13	3.5	2	0	7		
4.00	0	0	0	2	2	8	0	0	0	2	0	8		
4.50	0	0	0	2	2	9	0	0	0	2	0	9		
5.00	0	0	0	1	1	5	0	0	0	1	0	5		
5.50	0	0	0	2	2	11	0	0	0	2	0	11		
6.00	0	0	0	0	0	0	0	0	0	0	0	0		
6.50	0	0	0	1	1	6.5	0	0	0	1	0	6.5		
7.00	0	0	0	0	0	0	0	0	0	0	0	0		
7.50	0	0	0	0	0	0	0	0	0	0	0	0		
8.00	0	0	0	0	0	0	0	0	0	0	0	0		
8.50	0	0	0	0	0	0	0	0	0	0	0	0		
9.00	0	0	0	0	0	0	0	0	0	0	0	0		
Total	39		34	123		191	8		15	170		240		
Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100														
Avg. % occupancy	34			40			56			39				
Turn over = Tot. vehicles/ Tot. spaces														
Turn Over	3.55			2.32			2.67			2.46				
Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles														
Avg. Duration	0.87			1.55			1.88			1.41				

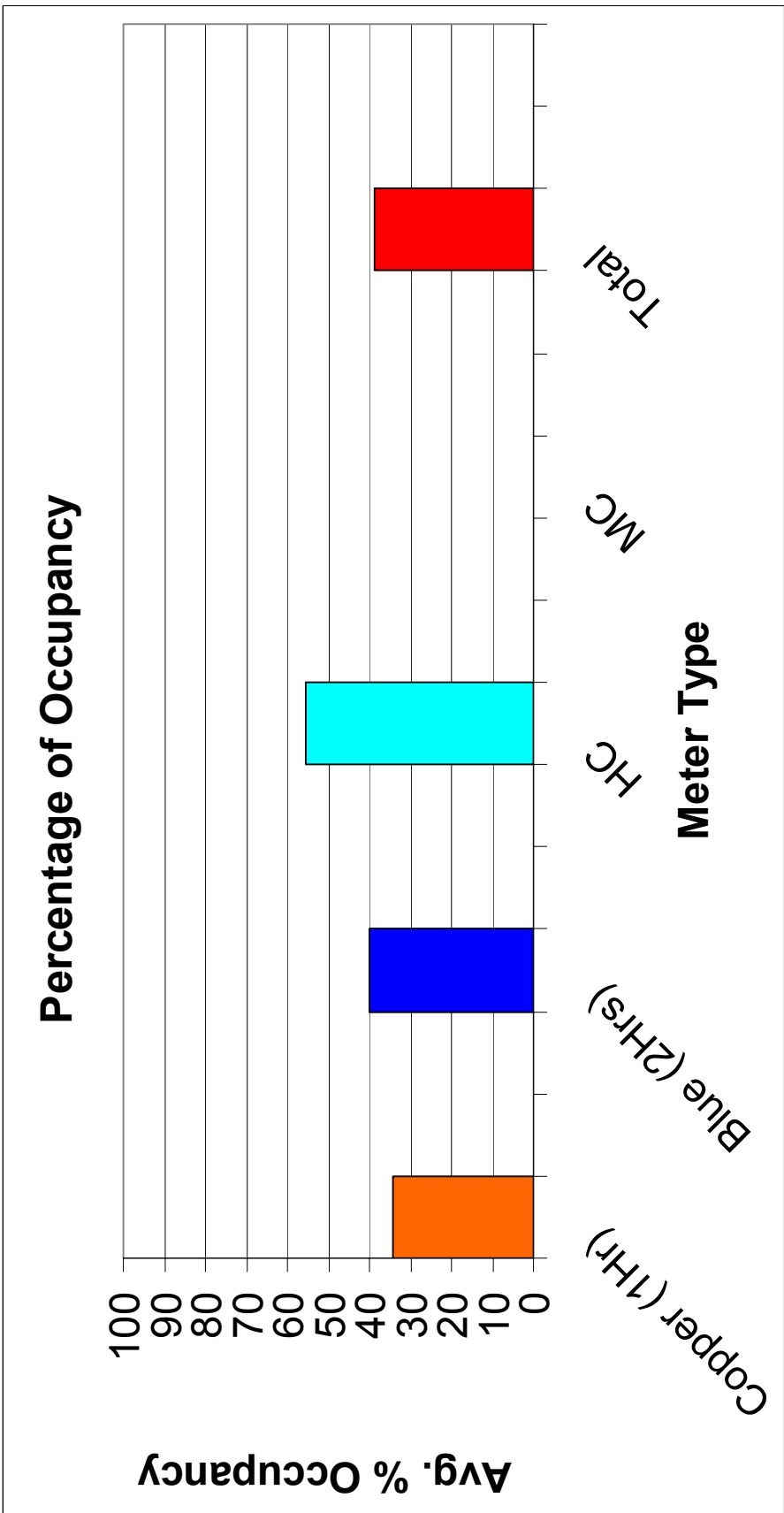


Figure B.7: Lot 17

Occupancy – Time of Day – Lot 33											DATE: 5/30/2007
TOD	# Vehicles				TOD	% Occupied				Total % Occupied	
	Yellow(4) 30mins	Blue (12) 2Hrs	Silver (34) 9Hrs	HC (3)		Total (53)	Yellow(4) 30mins	Blue (12) 2Hrs	Silver (34) 9Hrs		HC (3)
9:00a.m.	0	2	19	0	21	9:00a.m.	0	17	56	0	40
9:30a.m.	0	10	25	1	36	9:30a.m.	0	83	74	33	68
10:00a.m.	0	10	25	1	36	10:00a.m.	0	83	74	33	68
10:30a.m.	0	4	26	2	32	10:30a.m.	0	33	76	67	60
11:00a.m.	0	3	26	0	29	11:00a.m.	0	25	76	0	55
11:30a.m.	0	4	27	1	32	11:30a.m.	0	33	79	33	60
12:00p.m.	0	6	33	1	40	12:00p.m.	0	50	97	33	75
12:30p.m.	0	8	32	2	42	12:30p.m.	0	67	94	67	79
1:00p.m.	0	9	31	2	42	1:00p.m.	0	75	91	67	79
1:30p.m.	0	7	28	2	37	1:30p.m.	0	58	82	67	70
2:00p.m.	1	9	26	3	39	2:00p.m.	25	75	76	100	74
2:30p.m.	0	3	12	0	15	2:30p.m.	0	25	35	0	28
3:00p.m.	0	4	14	0	18	3:00p.m.	0	33	41	0	34
3:30p.m.	0	6	14	0	20	3:30p.m.	0	50	41	0	38
4:00p.m.	0	5	16	0	21	4:00p.m.	0	42	47	0	40
4:30p.m.	0	2	9	1	12	4:30p.m.	0	17	26	33	23
5:00p.m.	0	6	17	2	25	5:00p.m.	0	50	50	67	47
5:30p.m.	3	5	16	2	26	5:30p.m.	75	42	47	67	49
6:00p.m.	3	3	21	3	30	6:00p.m.	75	25	62	100	57
Indicates peak occupancy											

Peak Occupancy

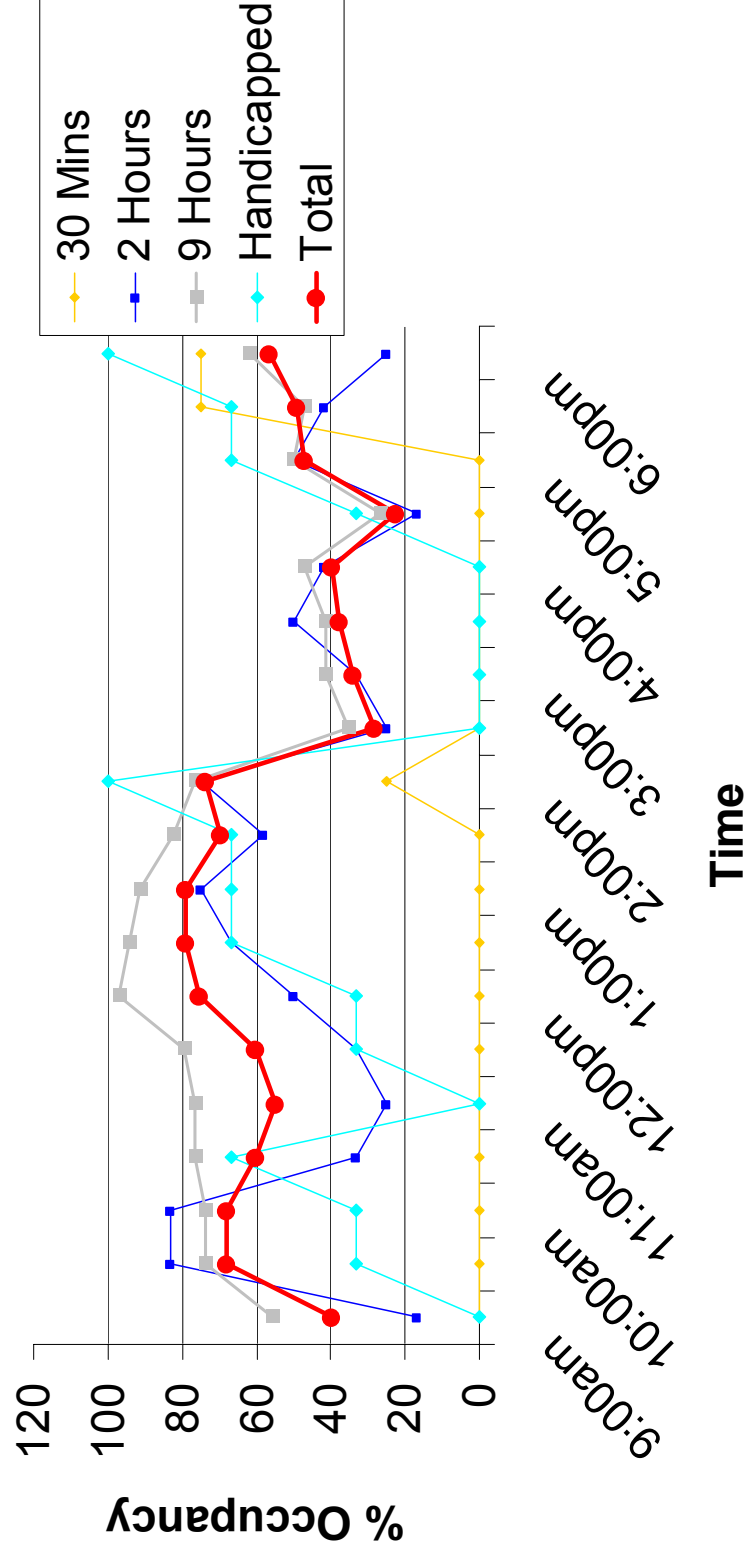


Figure B.8: Lot 33

Analysis – Lot 33 (excluding Handicapped)													DATE: 5/30/2007	
Total Spaces:53 Meter types: 53 – 30min, 2, 9hr Operational Hrs: 9a.m.-6p.m. (9hrs) Total Availability= (Tot. spaces*Operational hrs) = 53*9 = 477space-hrs														
Type	Yellow (30mins)				Blue (2Hrs)				Silver (9Hrs)				Total	
# Spaces	4				12				34				53	
Availability	36				108				306				477	
Duration (Hrs)	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied		
0.50	5	100	2.5	17	38	8.5	20	29	10	45	35	22.5		
1.00	0	0	0	18	40	18	11	16	11	33	26	33		
1.50	0	0	0	5	11	7.5	3	4	4.5	8	6	12		
2.00	0	0	0	2	4	4	3	4	6	7	5	14		
2.50	0	0	0	0	0	0	3	4	7.5	3	2	7.5		
3.00	0	0	0	0	0	0	4	6	12	4	3	12		
3.50	0	0	0	1	2	3.5	2	3	7	3	2	10.5		
4.00	0	0	0	1	2	4	0	0	0	1	1	4		
4.50	0	0	0	0	0	0	3	4	13.5	3	2	13.5		
5.00	0	0	0	0	0	0	4	6	20	4	3	20		
5.50	0	0	0	0	0	0	7	10	38.5	7	5	38.5		
6.00	0	0	0	1	2	6	1	1	6	2	2	12		
6.50	0	0	0	0	0	0	2	3	13	2	2	13		
7.00	0	0	0	0	0	0	0	0	0	0	0	0		
7.50	0	0	0	0	0	0	2	3	15	2	2	15		
8.00	0	0	0	0	0	0	1	1	8	1	1	8		
8.50	0	0	0	0	0	0	2	3	17	2	2	17		
9.00	0	0	0	0	0	0	1	1	9	1	1	9		
Total	5		2.5	45		51.5	69		198	128		261.5		
Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100														
Avg. % occupancy	7				48				65				55	
Turn over = Tot. vehicles/ Tot. spaces														
Turn Over	1.25				3.75				2.03				2.42	
Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles														
Avg. Duration	0.50				1.14				2.87				2.04	

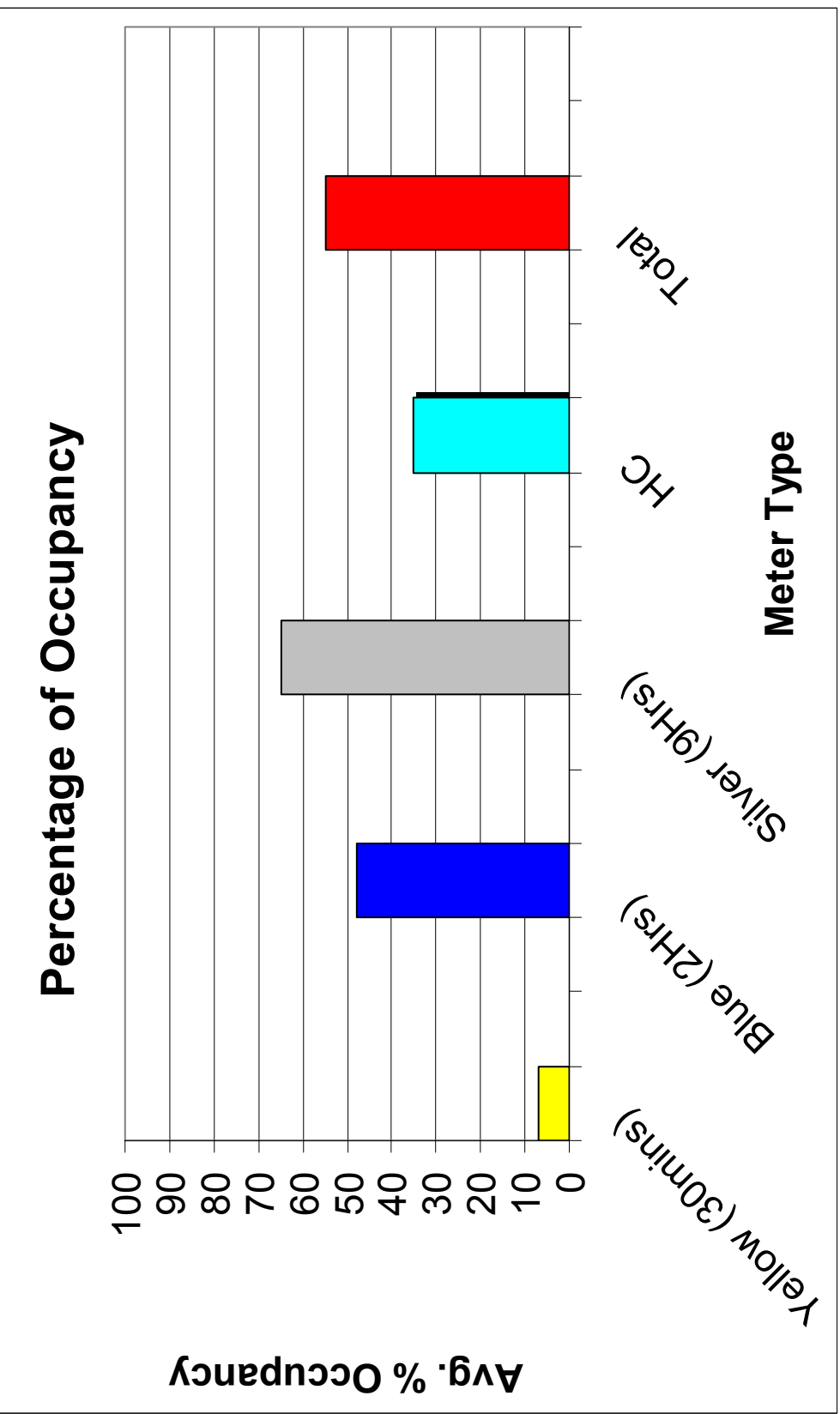


Figure B.9: Lot 33

Occupancy – Time of Day – Lot 34											DATE: 5/30/2007
TOD	Number of Vehicles					TOD	% Occupied				
	Blue (17)		Silver (22)		Total (41)		9Hrs				
	2Hrs	9Hrs	HC (2)	HC (2)			Blue (17)	Silver (22)	HC (2)	Total (41)	
9:00	2	12	0	14	9:00	12	55	0	34		
9:30	1	20	0	21	9:30	6	91	0	51		
10:00	2	22	0	24	10:00	12	100	0	59		
10:30	4	21	0	25	10:30	24	95	0	61		
11:00	3	20	0	23	11:00	18	91	0	56		
11:30	4	22	0	26	11:30	24	100	0	63		
12:00	9	21	1	31	12:00	53	95	50	76		
12:30	8	22	0	30	12:30	47	100	0	73		
1:00	8	22	0	30	1:00	47	100	0	73		
1:30	5	21	0	26	1:30	29	95	0	63		
2:00	9	22	0	31	2:00	53	100	0	76		
2:30	6	18	0	24	2:30	35	82	0	59		
3:00	5	19	0	24	3:00	29	86	0	59		
3:30	5	18	0	23	3:30	29	82	0	56		
4:00	7	21	0	28	4:00	41	95	0	68		
4:30	5	14	0	19	4:30	29	64	0	46		
5:00	7	17	0	24	5:00	41	77	0	59		
5:30	11	17	0	28	5:30	65	77	0	68		
6:00	8	12	0	20	6:00	47	55	0	49		
	Indicates peak occupancy										

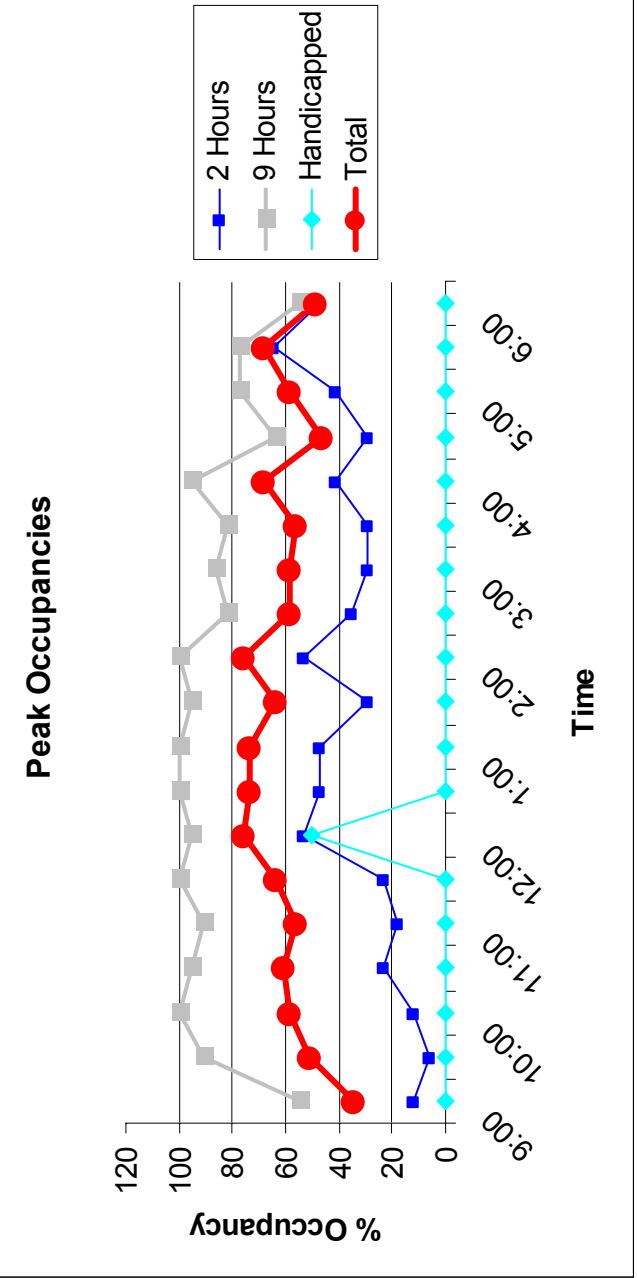


Figure B.10: Lot 34

Analysis - Lot 34												DATE: 5/30/2007
Total Spaces: 41 Lot types: 41 - 2, 9hr Operational Hrs: 9a.m.-6p.m. (9hrs) Total Availability= (Tot. spaces*Operational hrs) = 41*9 = 369space-hrs												
Type	Blue (2Hrs)			Silver (9Hrs)			HC			Total		
Availability	153			198			18			369		
Duration (Hrs)	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	Space Hrs Occupied	# Vehicles	% of Vehicles	
0.50	28	64	14	8	18	4	1	50	0.5	37	42	
1.00	7	16	7	5	11	5	0	0	0	12	13	
1.50	6	14	9	3	7	4.5	0	0	0	9	10	
2.00	0	0	0	2	5	4	0	0	0	2	2	
2.50	0	0	0	3	7	7.5	0	0	0	3	3	
3.00	0	0	0	2	5	6	0	0	0	2	2	
3.50	1	2	3.5	1	2	3.5	0	0	0	2	2	
4.00	0	0	0	1	2	4	0	0	0	1	1	
4.50	0	0	0	2	5	9	0	0	0	2	2	
5.00	0	0	0	2	5	10	0	0	0	2	2	
5.50	0	0	0	2	5	11	0	0	0	2	2	
6.00	0	0	0	1	2	6	0	0	0	1	1	
6.50	0	0	0	0	0	0	0	0	0	0	0	
7.00	0	0	0	0	0	0	0	0	0	0	0	
7.50	1	2	7.5	2	5	15	0	0	0	3	3	
8.00	0	0	0	3	7	24	0	0	0	3	3	
8.50	1	2	8.5	4	9	34	0	0	0	5	6	
9.00	0	0	0	3	7	27	0	0	0	3	3	
Total	44	49.5	174.5	44	88	174.5	1	3	0.5	89	224.5	
Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100												
Avg. % occupancy	32			88			3			61		
Turn over = Tot. vehicles/ Tot. spaces												
Turn Over	2.59			2.00			0.50			2.17		
Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles												
Avg. Duration	1.13			3.97			0.50			2.52		

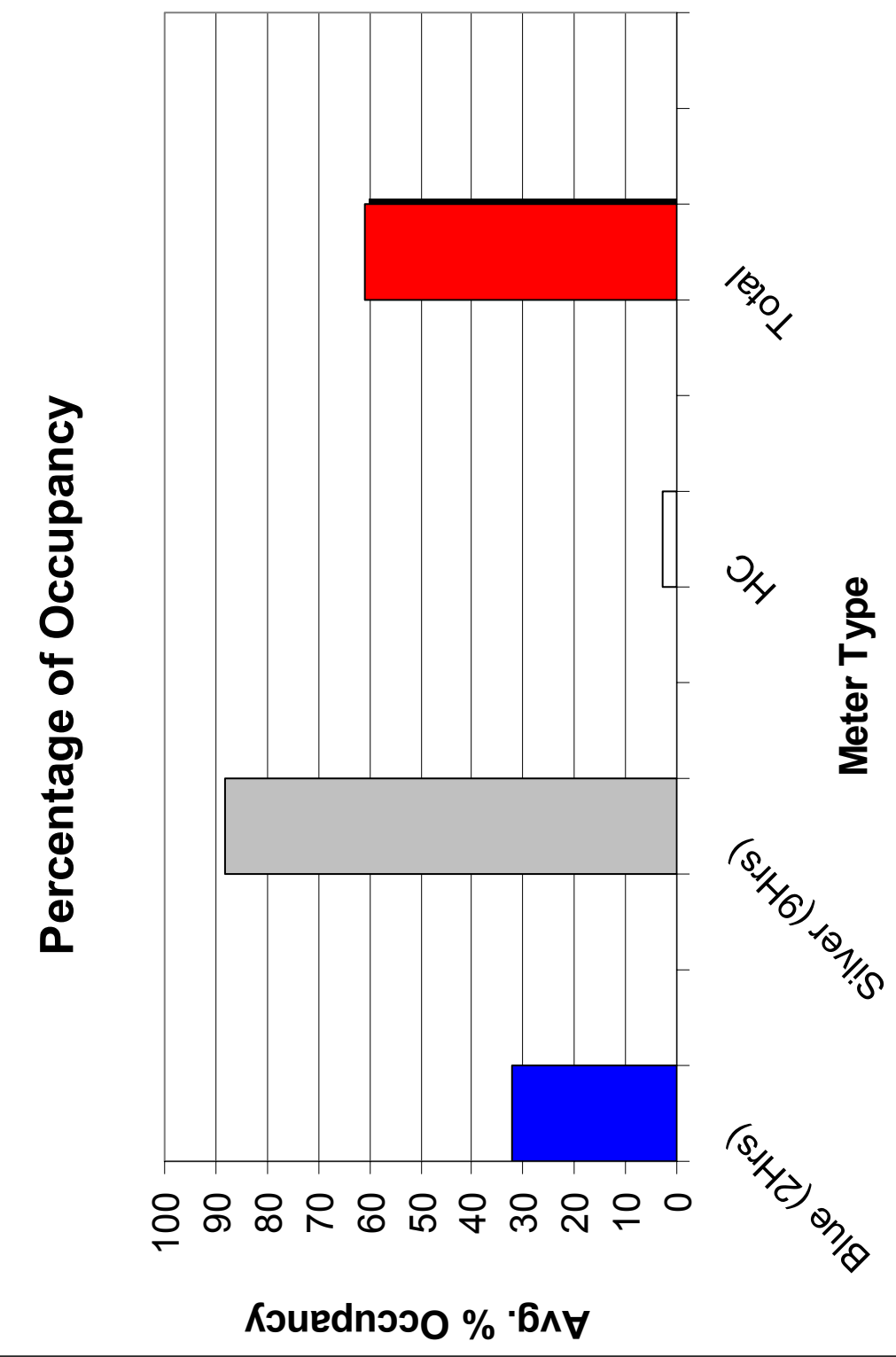
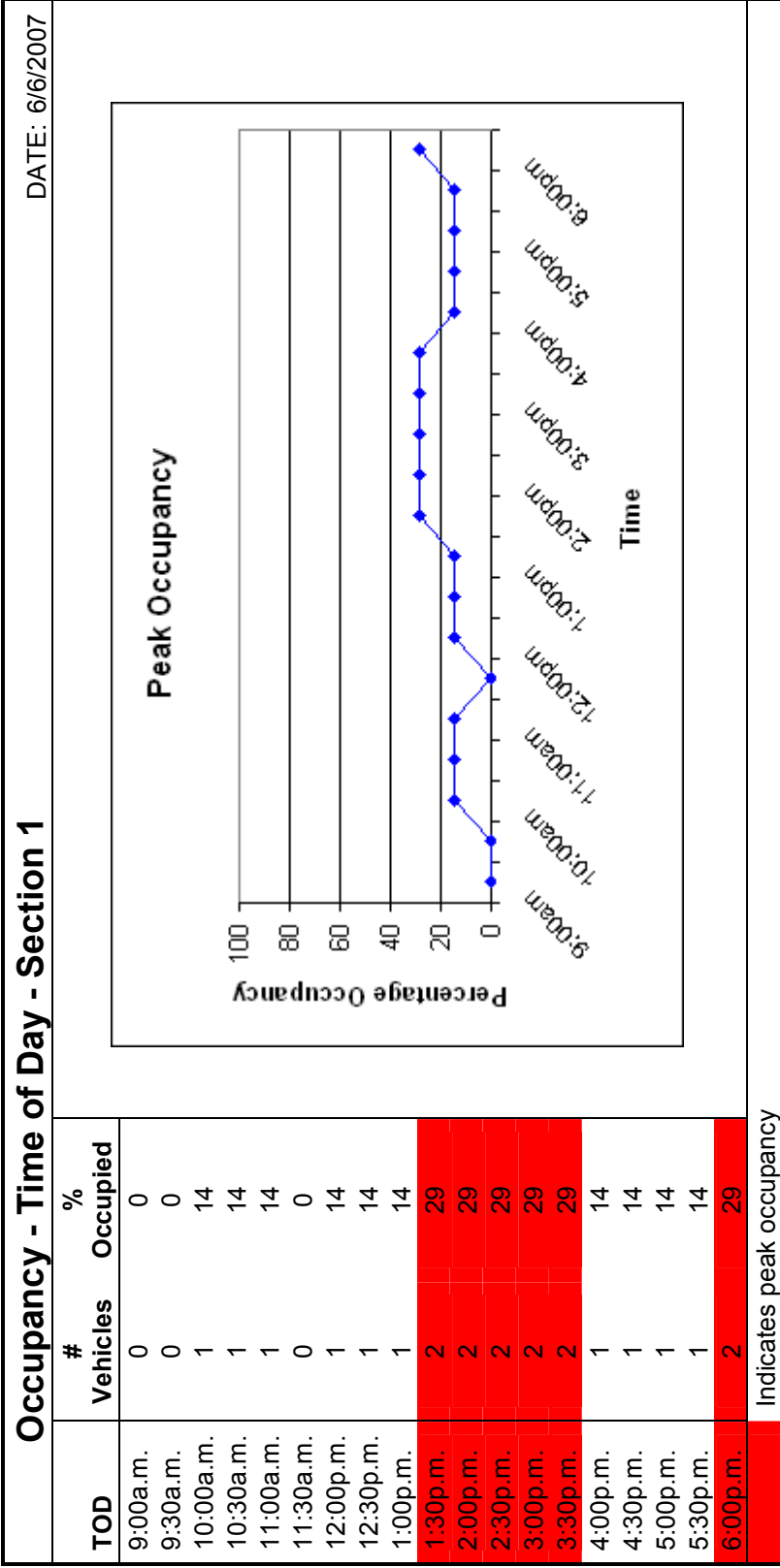


Figure B.11: Lot 34



Analysis - On-Street Section 1

DATE: 6/6/2007

Total Spaces: 7

Meter types: 7-3hr

Operational Hrs: 9a.m.-6p.m. (9hrs)

Total Availability= (Tot. spaces*Operational hrs)

= 7*9 = 63space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	2	29	1
1.00	2	29	2
1.50	2	29	3
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	1	14	3.5
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	7		9.5

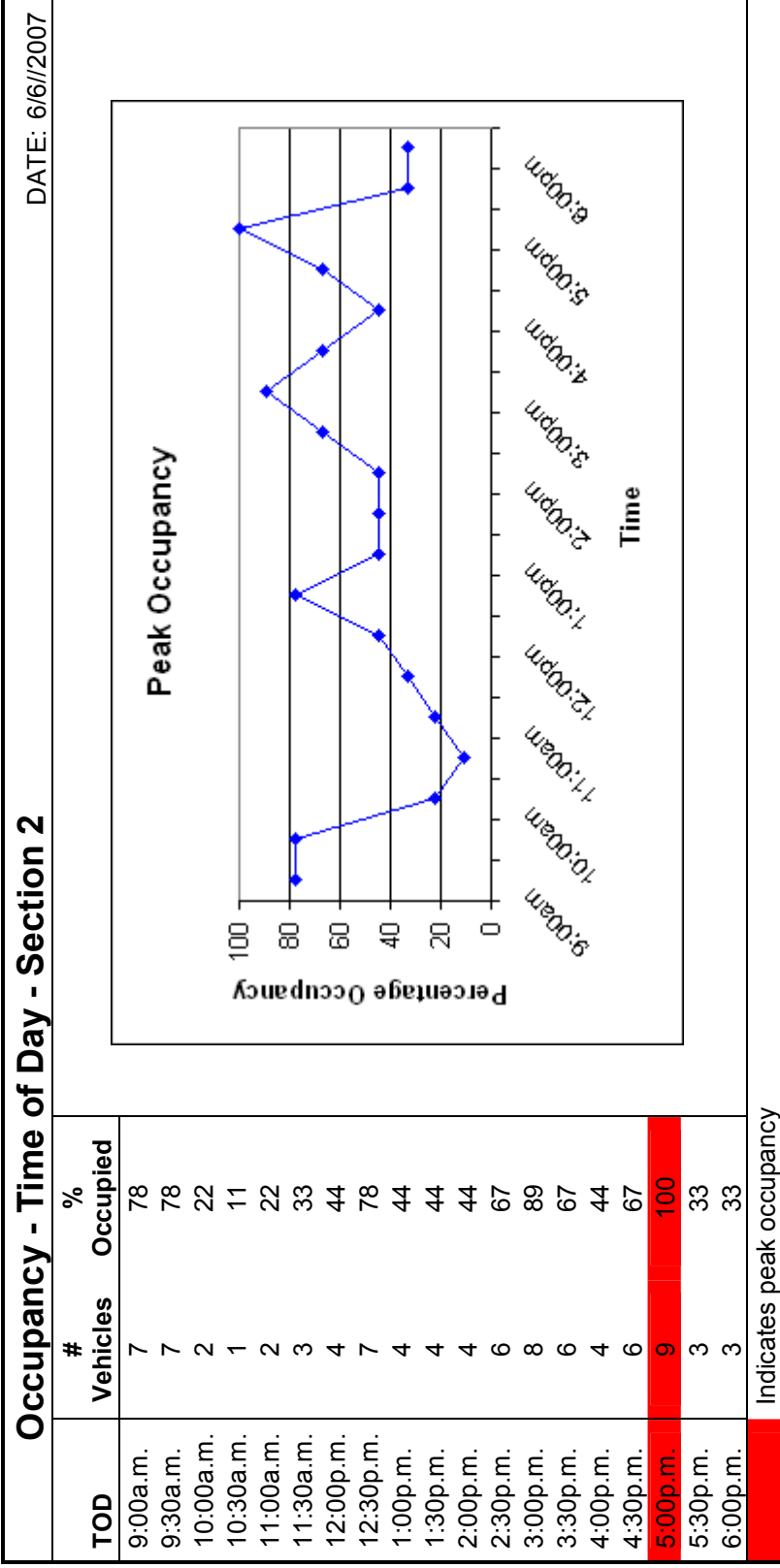
Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100

= (9.5/63)*100 = 15%

Turn over = Tot. vehicles/ Tot. spaces = 9.5/7 = 1.36

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles

= 9.5/7 = 1.36hrs



Analysis - On-Street Section 2

DATE: 6/6/2007

Total Spaces: 9
 Meter types: 9 - 30mins
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 9*9 = 81space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	78	95	39
1.00	3	4	3
1.50	1	1	1.5
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	82		43.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (43.5/81)*100 = 54%

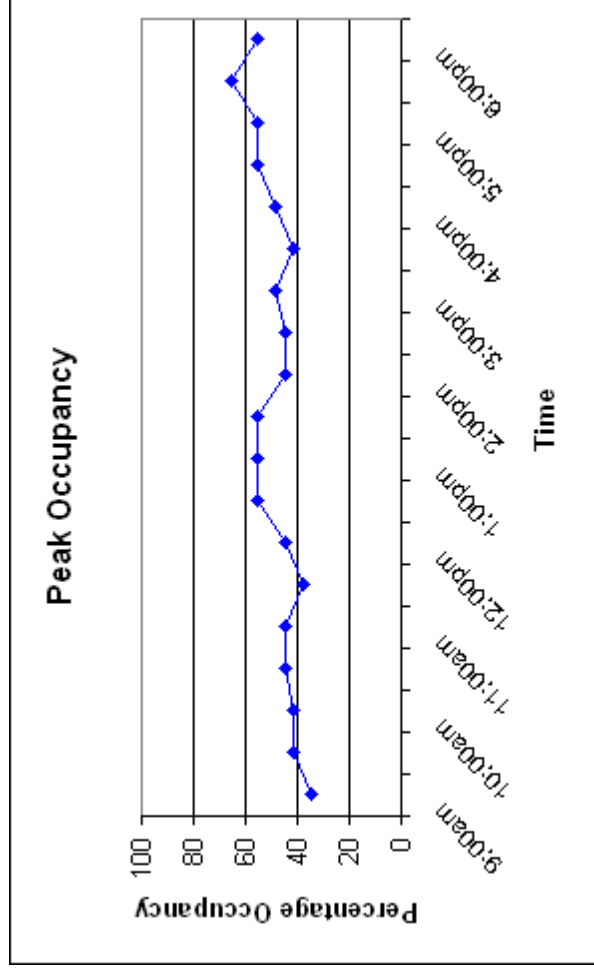
Turn over = Tot. vehicles/ Tot. spaces = 82/9 = 9.11

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 43.5/82 = 0.53 hrs

Occupancy - Time of Day- Section 3

DATE: 6/6/2007

TOD	# Vehicles	% Occupied
9:00a.m.	10	34
9:30a.m.	12	41
10:00a.m.	12	41
10:30a.m.	13	45
11:00a.m.	13	45
11:30a.m.	11	38
12:00p.m.	13	45
12:30p.m.	16	55
1:00p.m.	16	55
1:30p.m.	16	55
2:00p.m.	13	45
2:30p.m.	13	45
3:00p.m.	14	48
3:30p.m.	12	41
4:00p.m.	14	48
4:30p.m.	16	55
5:00p.m.	16	55
5:30p.m.	19	66
6:00p.m.	16	55
Indicates peak occupancy		



Analysis - On-Street Section 3

DATE: 6/6/2007

Total Spaces: 29

Meter types: 29-12hr

Operational Hrs: 9a.m.-6p.m. (9hrs)

Total Availability= (Tot. spaces*Operational hrs)

= 29*12 = 348space-hrs

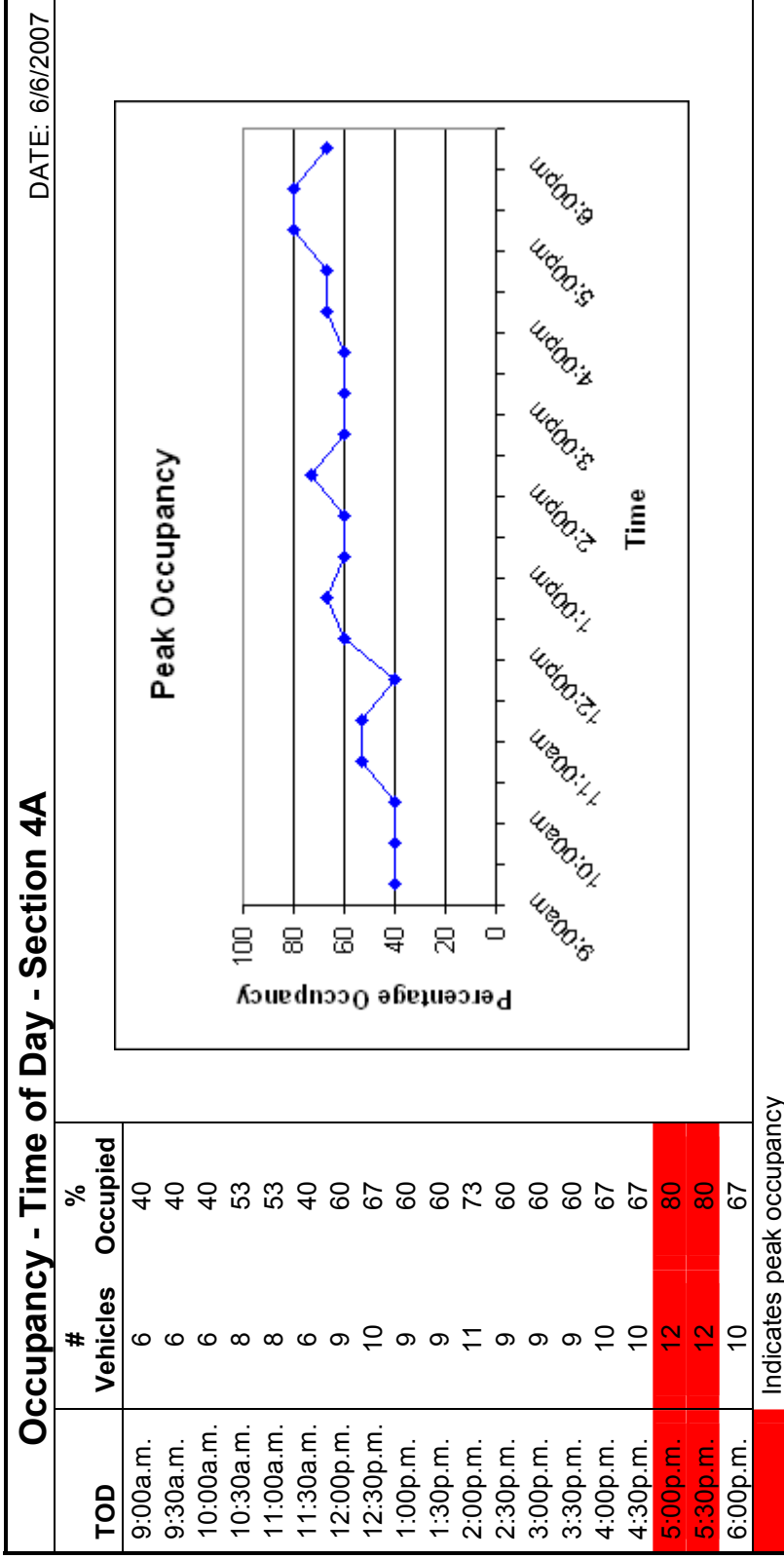
Availability based on survey = 29*9 = 261space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	12	26	6
1.00	9	19	9
1.50	6	13	9
2.00	2	4	4
2.50	1	2	2.5
3.00	4	9	12
3.50	2	4	7
4.00	2	4	8
4.50	0	0	0
5.00	0	0	0
5.50	2	4	11
6.00	1	2	6
6.50	1	2	6.5
7.00	1	2	7
7.50	0	0	0
8.00	0	0	0
8.50	0	0	0
9.00	4	9	36
Total	47		124

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
= (124/261)*100 = 48%

Turn over = Tot. vehicles/ Tot. spaces = 47/29 = 1.62

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
= 124/47 = 2.64hrs



Analysis - On-Street Section 4a

DATE: 6/6/2007

Total Spaces: 15

Meter types: 15-12hr

Operational Hrs: 9a.m.-6p.m. (9hrs)

Total Availability= (Tot. spaces*Operational hrs)

= 15*12 = 180space-hrs

Availability based on survey = 15*9 = 135space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	1	5	0.5
1.00	5	26	5
1.50	1	5	1.5
2.00	1	5	2
2.50	2	11	5
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	2	11	11
6.00	2	11	12
6.50	1	5	6.5
7.00	0	0	0
7.50	0	0	0
8.00	0	0	0
8.50	0	0	0
9.00	4	21	36
Total	19		79.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
= (79.5/135)*100 = 59%

Turn over = Tot. vehicles/ Tot. spaces = 19/15 = 1.27

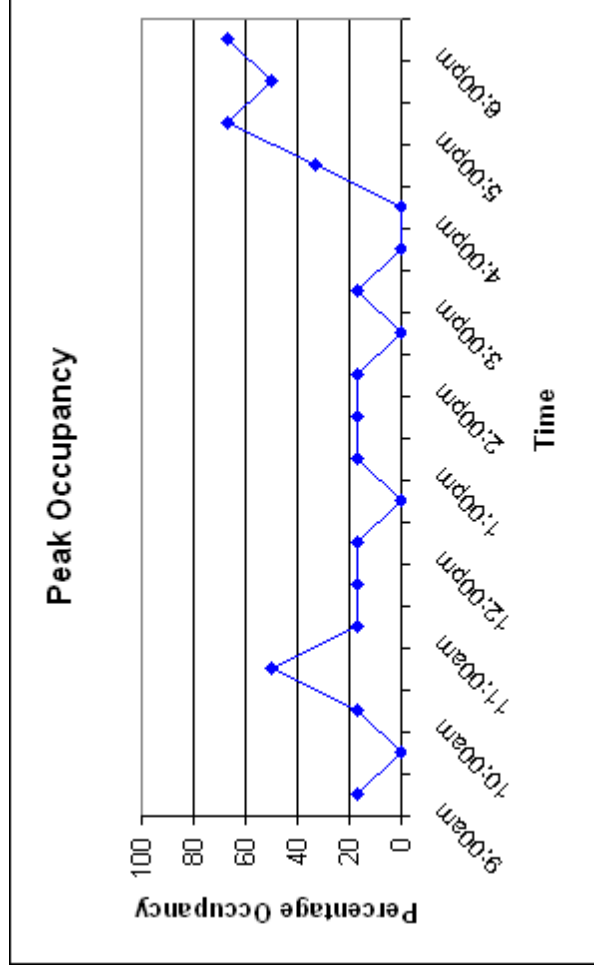
Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
= 79.5/19 = 4.18hrs

Occupancy - Time of Day - Section 4B

DATE: 6/6/2007

TOD	# Vehicles	% Occupied
9:00a.m.	1	17
9:30a.m.	0	0
10:00a.m.	1	17
10:30a.m.	3	50
11:00a.m.	1	17
11:30a.m.	1	17
12:00p.m.	1	17
12:30p.m.	0	0
1:00p.m.	1	17
1:30p.m.	1	17
2:00p.m.	1	17
2:30p.m.	0	0
3:00p.m.	1	17
3:30p.m.	0	0
4:00p.m.	0	0
4:30p.m.	2	33
5:00p.m.	4	67
5:30p.m.	3	50
6:00p.m.	4	67

Indicates peak occupancy



Analysis - On-Street Section 4b DATE: 6/6/2007

Total Spaces: 6

Meter types: 6-1hr

Operational Hrs: 9a.m.-6p.m. (9hrs)

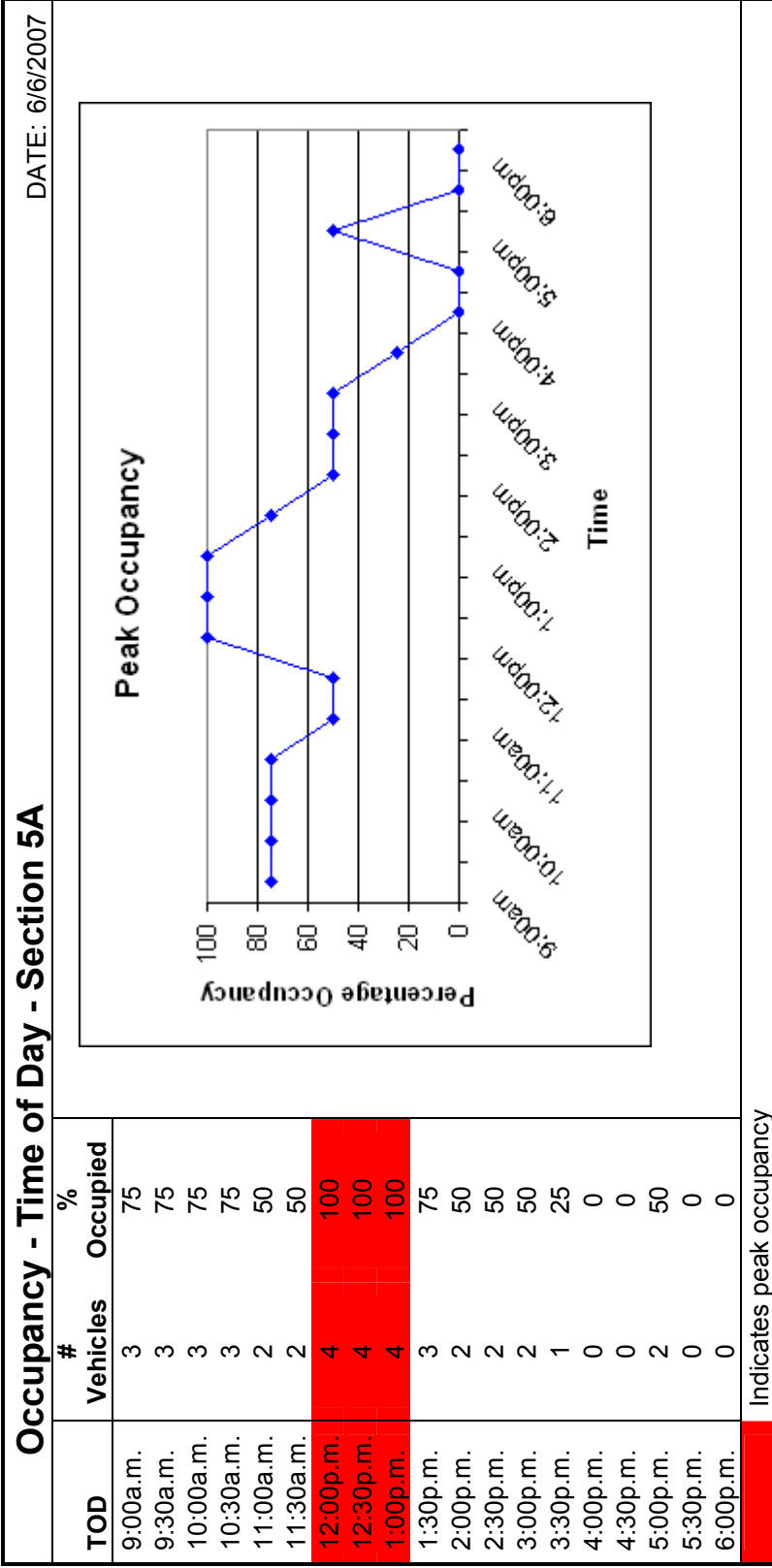
Total Availability= (Tot. spaces*Operational hrs)
= 6*9 = 54space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	10	77	5
1.00	2	15	2
1.50	0	0	0
2.00	0	0	0
2.50	1	8	2.5
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	13		9.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
= (9.5/54)*100 = 18%

Turn over = Tot. vehicles/ Tot. spaces = 13/6 = 2.17

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
= 9.5/13 = 0.73hrs



Analysis - On-Street Section 5a DATE: 6/6/2007

Total Spaces: 4

Meter types: 4-2hr

Operational Hrs: 9a.m.-6p.m. (9hrs)

Total Availability= (Tot. spaces*Operational hrs)

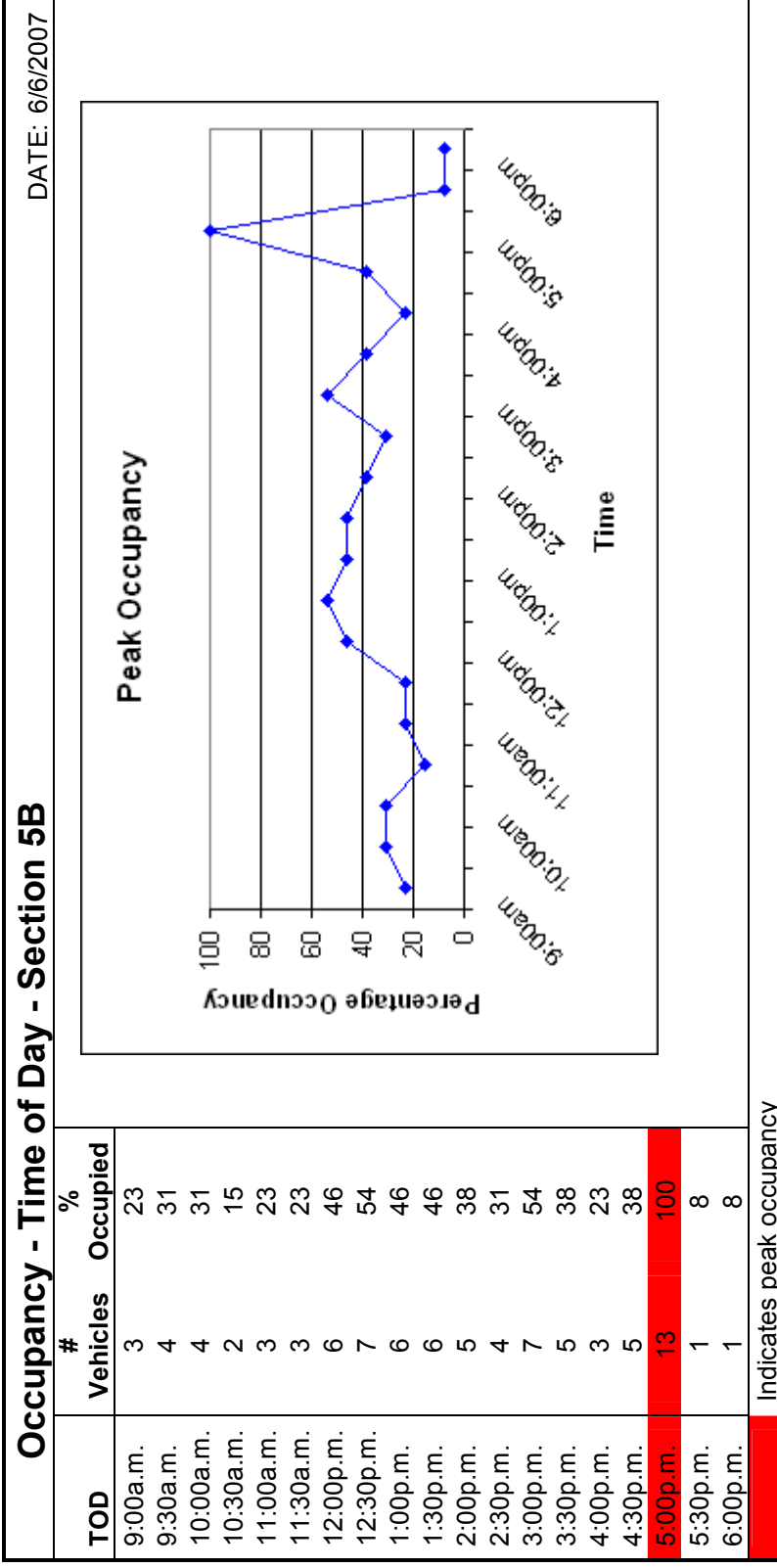
= 4*9 = 36space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	3	25	1.5
1.00	0	0	0
1.50	1	8	1.5
2.00	6	50	12
2.50	2	17	5
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	12		20

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
= (20/36)*100 = 56%

Turn over = Tot. vehicles/ Tot. spaces = 12/4 = 3

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
= 20/12 = 1.66hrs



Analysis - On-Street Section 5b

DATE: 6/6/2007

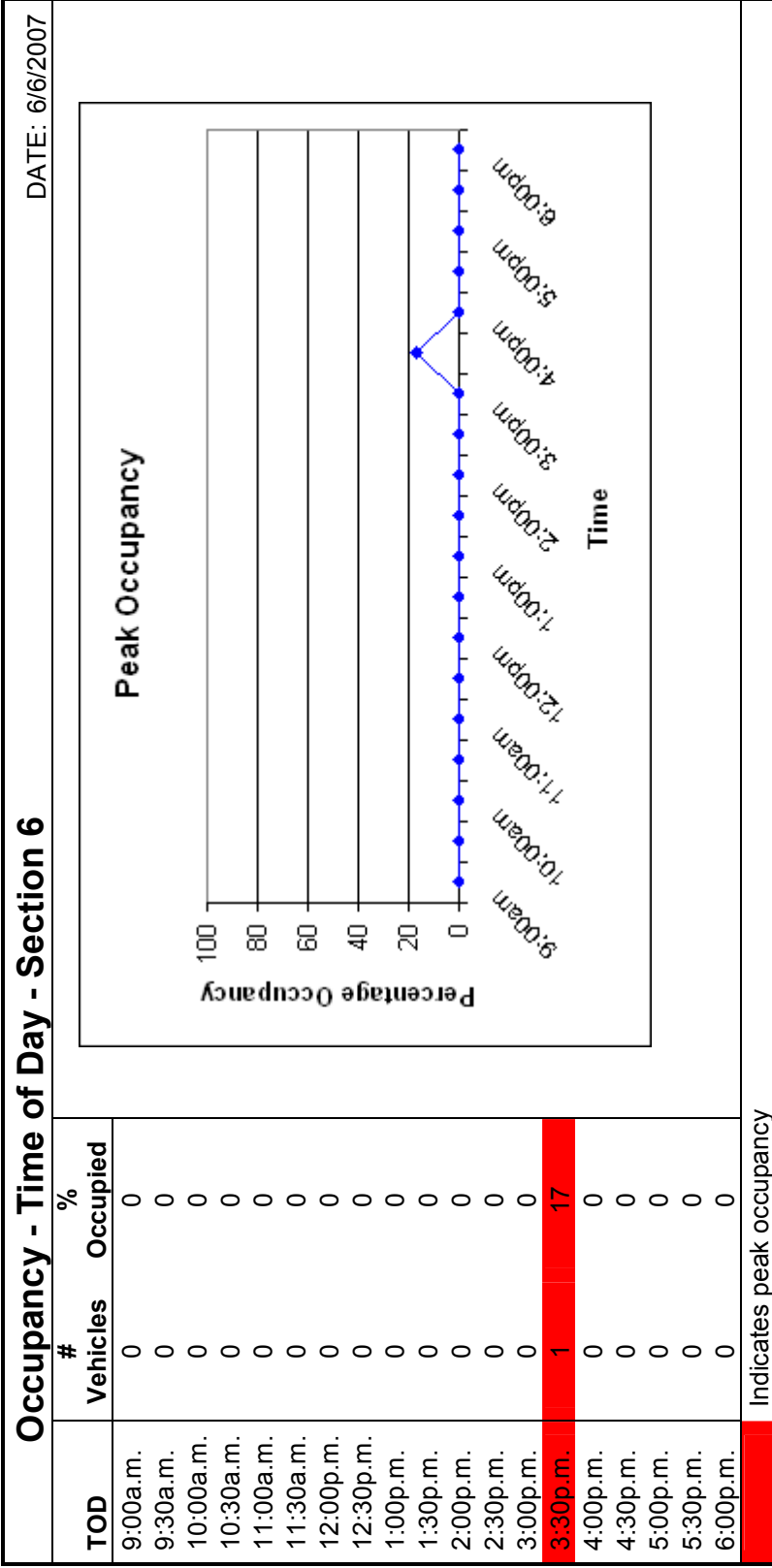
Total Spaces: 13
 Meter types: 13-30mins
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 13*9 = 117space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	61	90	30.5
1.00	5	7	5
1.50	0	0	0
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	1	1	3.5
4.00	0	0	0
4.50	1	1	4.5
5.00	0	0	0
5.50	0	0	0
Total	68		43.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (43.5/117)*100 = 37%

Turn over = Tot. vehicles/ Tot. spaces = 68/13 = 5.23

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 43.5/68 = 0.64hrs



Analysis - On-Street Section 6

DATE: 6/6/2007

Total Spaces: 6
 Meter types: 6-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 6*9 = 54space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	1	100	0.5
1.00	0	0	0
1.50	0	0	0
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	1		0.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (0.5/54)*100 = 1%

Turn over = Tot. vehicles/ Tot. spaces = 1/6 = 0.17

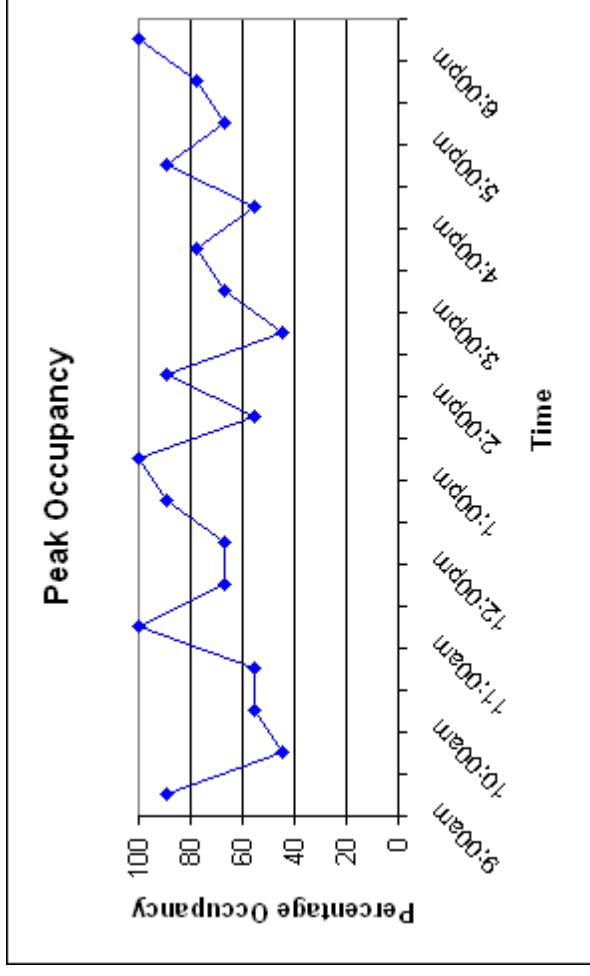
Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 0.5/1 = 0.5hrs

Occupancy - Time of Day - Section 7

DATE: 5/31/2007

TOD	# Vehicles	% Occupied
9:00a.m.	8	89
9:30a.m.	4	44
10:00a.m.	5	56
10:30a.m.	5	56
11:00a.m.	9	100
11:30a.m.	6	67
12:00p.m.	6	67
12:30p.m.	8	89
1:00p.m.	9	100
1:30p.m.	5	56
2:00p.m.	8	89
2:30p.m.	4	44
3:00p.m.	6	67
3:30p.m.	7	78
4:00p.m.	5	56
4:30p.m.	8	89
5:00p.m.	6	67
5:30p.m.	7	78
6:00p.m.	9	100

Indicates peak occupancy



Analysis - On-Street Section 7

DATE: 5/31/2007

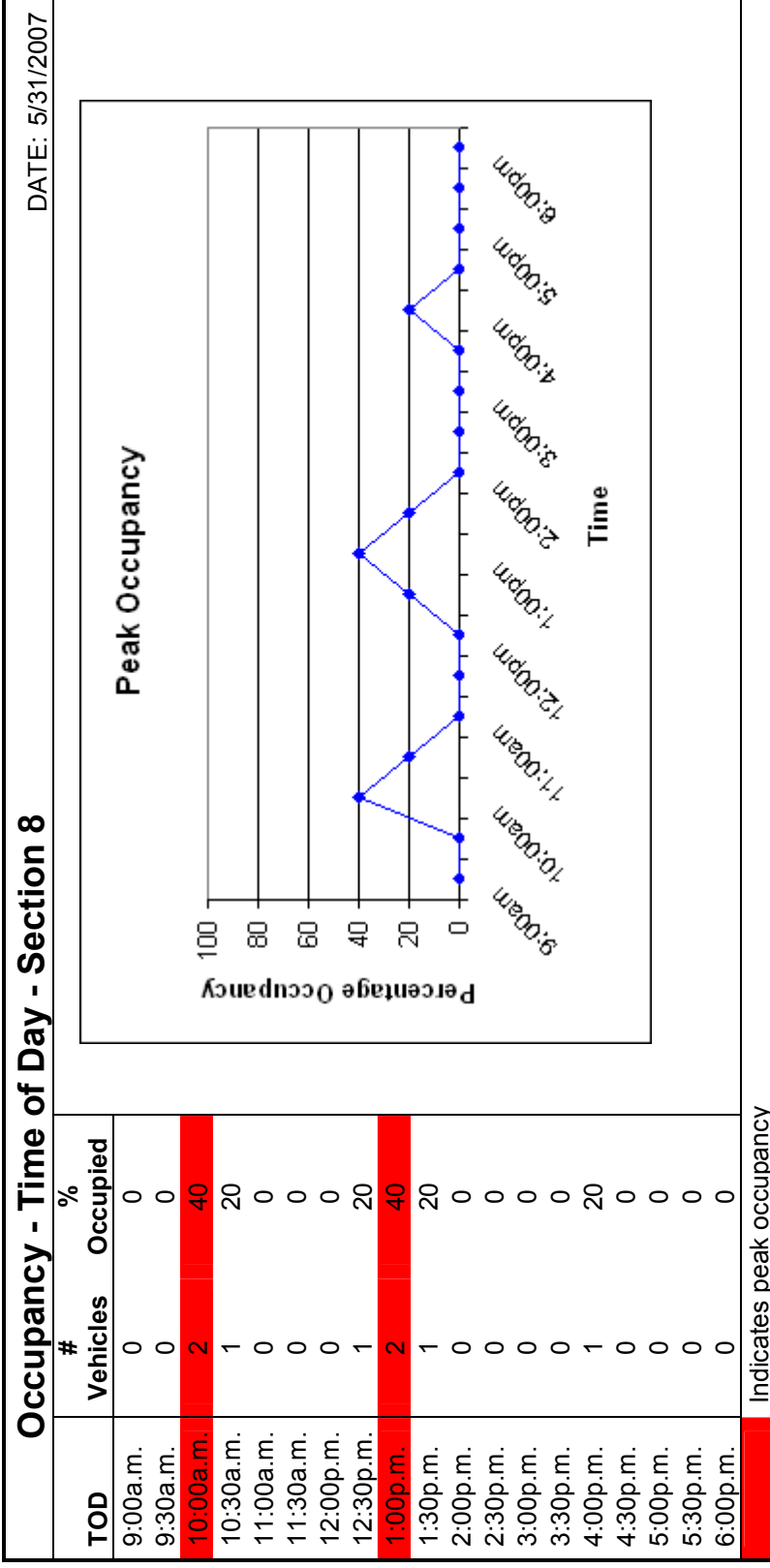
Total Spaces: 9
 Meter types: 9-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 9*9 = 81space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	27	55	13.5
1.00	10	20	10
1.50	6	12	9
2.00	1	2	2
2.50	2	4	5
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
6.00	2	4	12
6.50	1	2	6.5
Total	49		58

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (58/81)*100 = 72%

Turn over = Tot. vehicles/ Tot. spaces = 49/9 = 5.44

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 58/49 = 1.18hrs



Analysis - On-Street Section 8

DATE: 5/31/2007

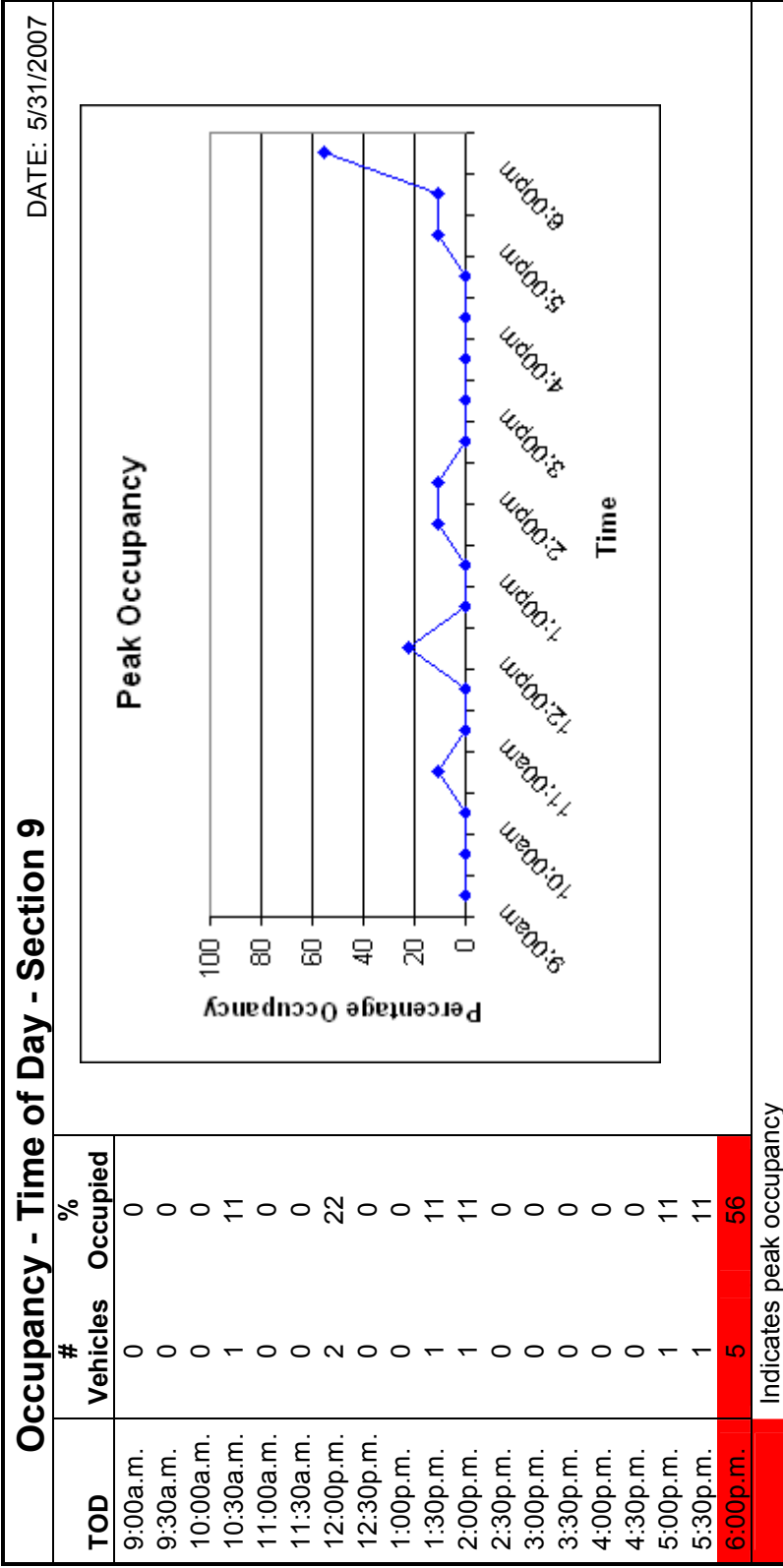
Total Spaces: 5
 Meter types: 5-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 5*9 = 45space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	4	67	2
1.00	2	33	2
1.50	0	0	0
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	6		4

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (4/45)*100 = 9%

Turn over = Tot. vehicles/ Tot. spaces = 6/5 = 1.2

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 4/6 = 0.67hrs



Analysis - On-Street Section 9

DATE: 5/31/2007

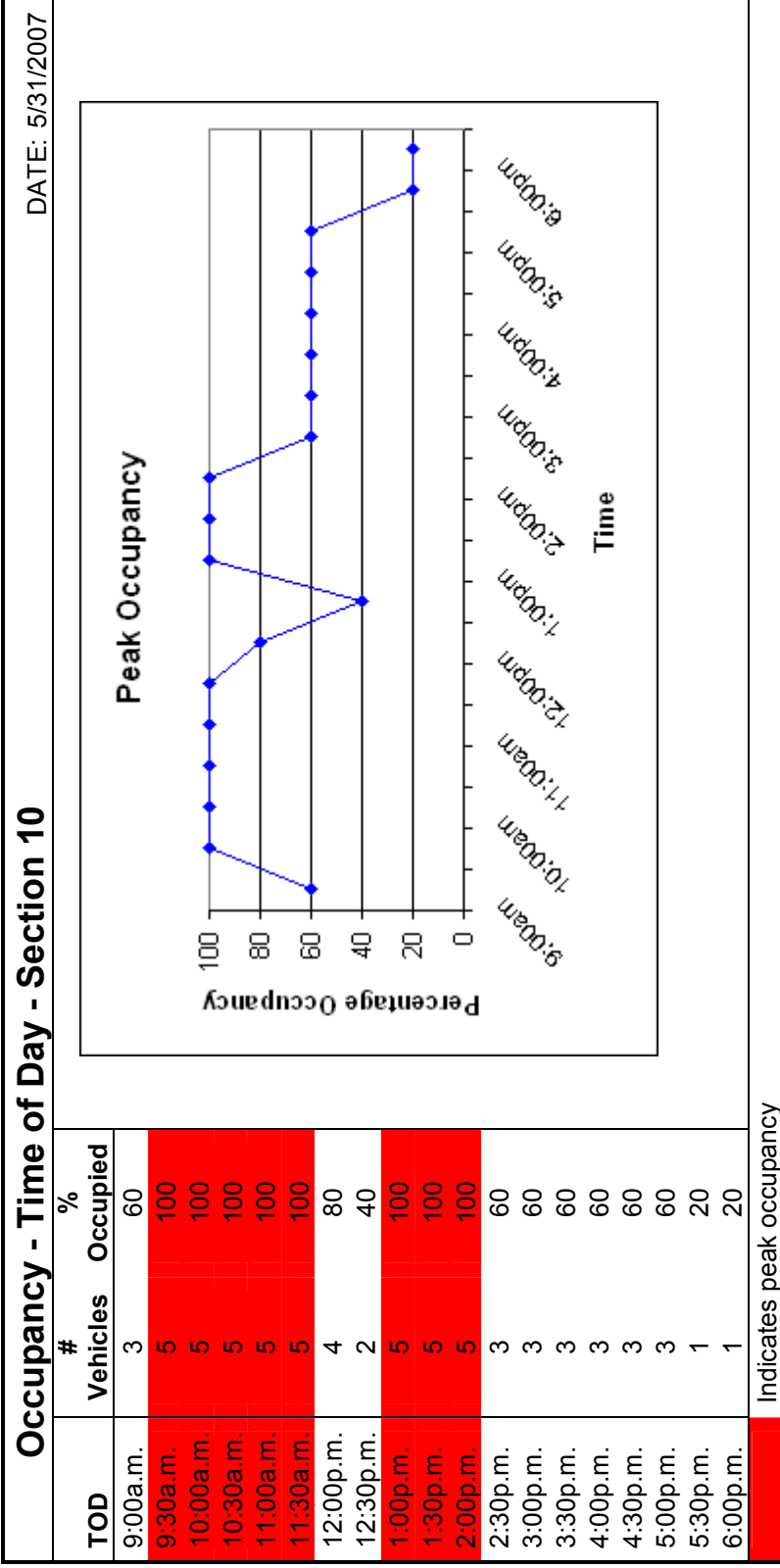
Total Spaces: 9
 Meter types: 9-9hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 9*9 = 81space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	3	60	1.5
1.00	2	40	2
1.50	0	0	0
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	5		3.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (3.5/81)*100 = 4%

Turn over = Tot. vehicles/ Tot. spaces = 5/9 = 0.56

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 3.5/5 = 0.70hrs



Analysis - On-Street Section 10

DATE: 5/31/2007

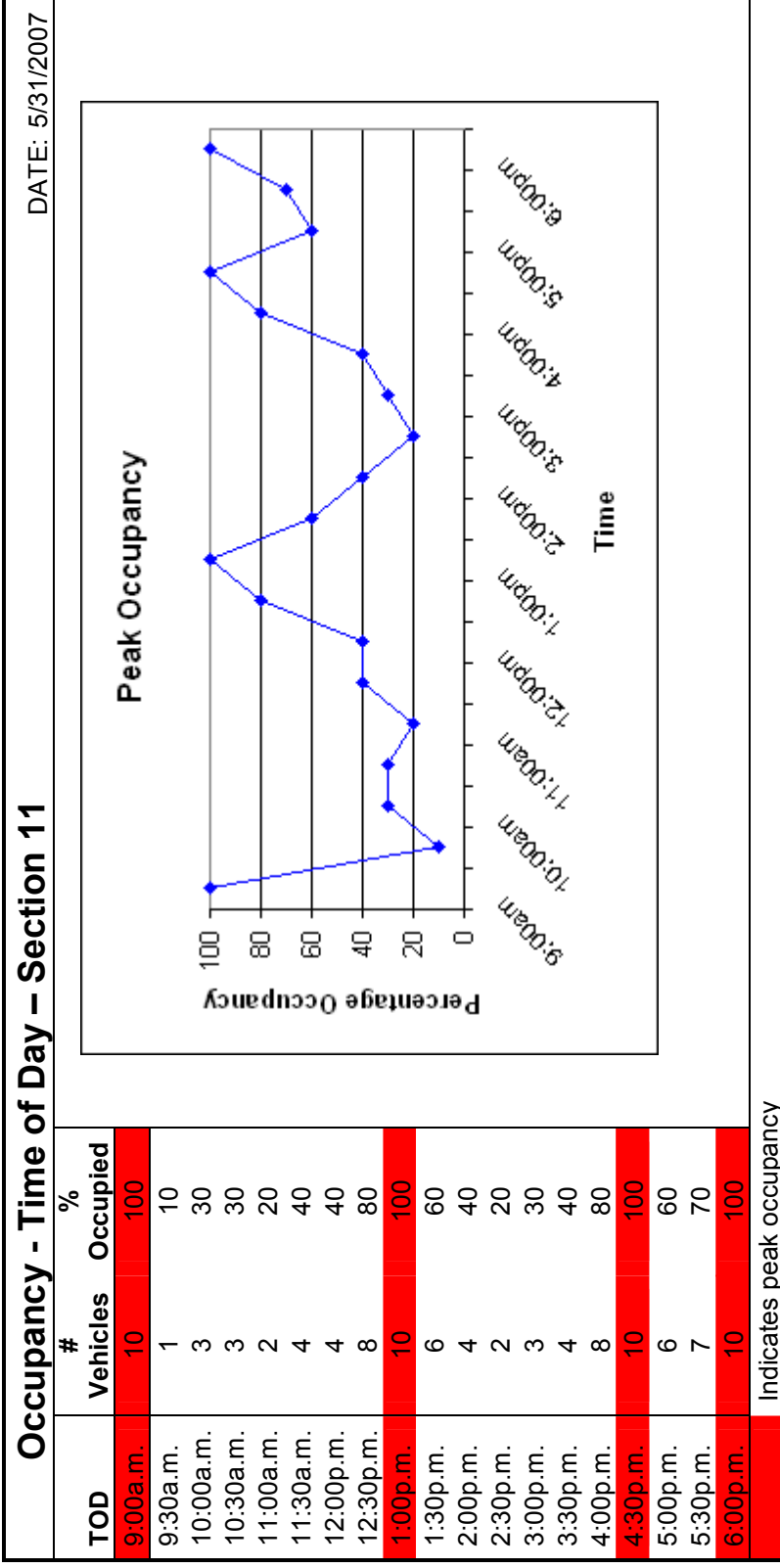
Total Spaces: 5
 Meter types: 5-9hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 5*9 = 45space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	0	0	0
1.00	0	0	0
1.50	1	11	1.5
2.00	0	0	0
2.50	1	11	2.5
3.00	0	0	0
3.50	3	33	10.5
4.00	0	0	0
4.50	2	22	9
5.00	1	11	5
5.50	1	11	5.5
Total	9		34

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (34/45)*100 = 76%

Turn over = Tot. vehicles/ Tot. spaces = 9/5 = 1.8

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 34/9 = 3.78hrs



Analysis - On-Street Section 11

DATE: 5/31/2007

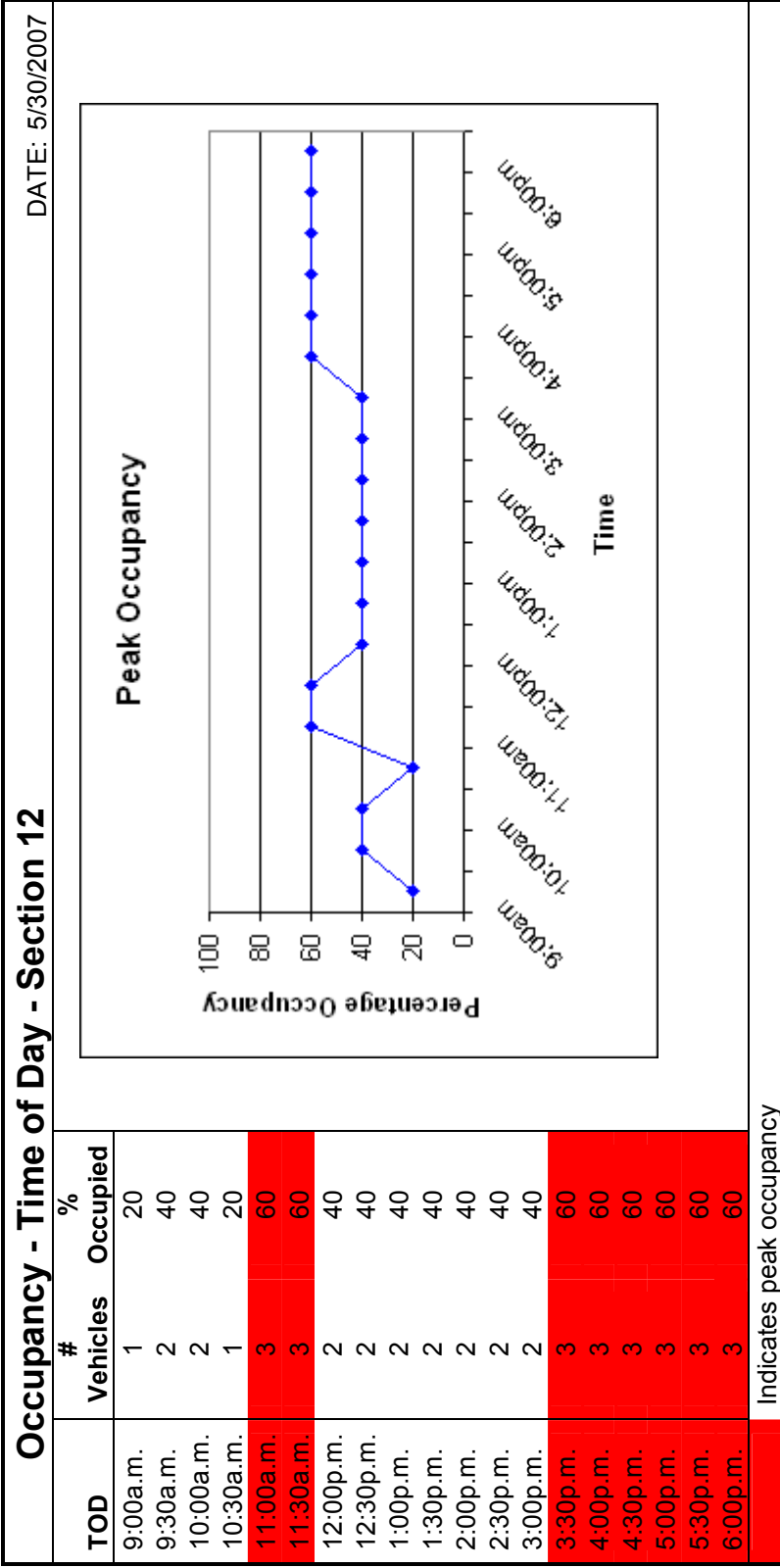
Total Spaces: 10
 Meter types: 10-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 10*9 = 90space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	28	53	14
1.00	15	28	15
1.50	5	9	7.5
2.00	4	8	8
2.50	0	0	0
3.00	1	2	3
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	53		47.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (47.5/90)*100 = 53%

Turn over = Tot. vehicles/ Tot. spaces = 53/10 = 5.3

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 47.5/53 = 0.90hrs



Analysis - On-Street Section 12

DATE: 5/30/2007

Total Spaces: 5
 Meter types: 5-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 5*9 = 45space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	3	33	1.5
1.00	1	11	1
1.50	2	22	3
2.00	0	0	0
2.50	1	11	2.5
3.00	0	0	0
3.50	0	0	0
4.00	1	11	4
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
6.00	0	0	0
6.50	0	0	0
7.00	0	0	0
7.50	0	0	0
8.00	0	0	0
8.50	1	11	8.5
Total	9		20.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (20.5/45)*100 =46 %

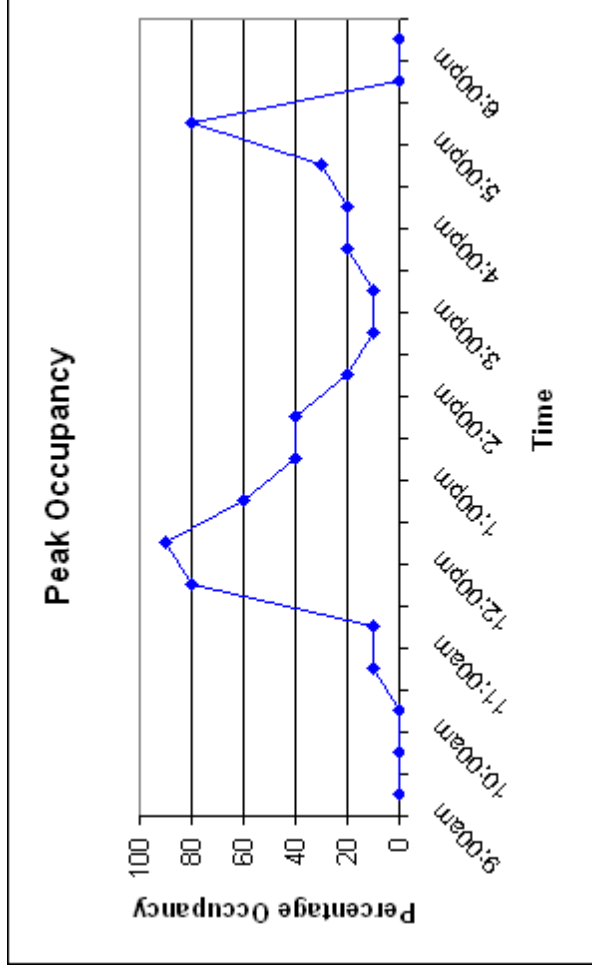
Turn over = Tot. vehicles/ Tot. spaces = 9/5 = 1.8

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 20.5/9 = 2.28hrs

Occupancy - Time of Day – Section 13

DATE: 5/30/2007

TOD	# Vehicles	% Occupied
9:00a.m.	0	0
9:30a.m.	0	0
10:00a.m.	0	0
10:30a.m.	1	10
11:00a.m.	1	10
11:30a.m.	8	80
12:00p.m.	9	90
12:30p.m.	6	60
1:00p.m.	4	40
1:30p.m.	4	40
2:00p.m.	2	20
2:30p.m.	1	10
3:00p.m.	1	10
3:30p.m.	2	20
4:00p.m.	2	20
4:30p.m.	3	30
5:00p.m.	8	80
5:30p.m.	0	0
6:00p.m.	0	0



Indicates peak occupancy

Analysis - On-Street Section 13

DATE: 5/30/2007

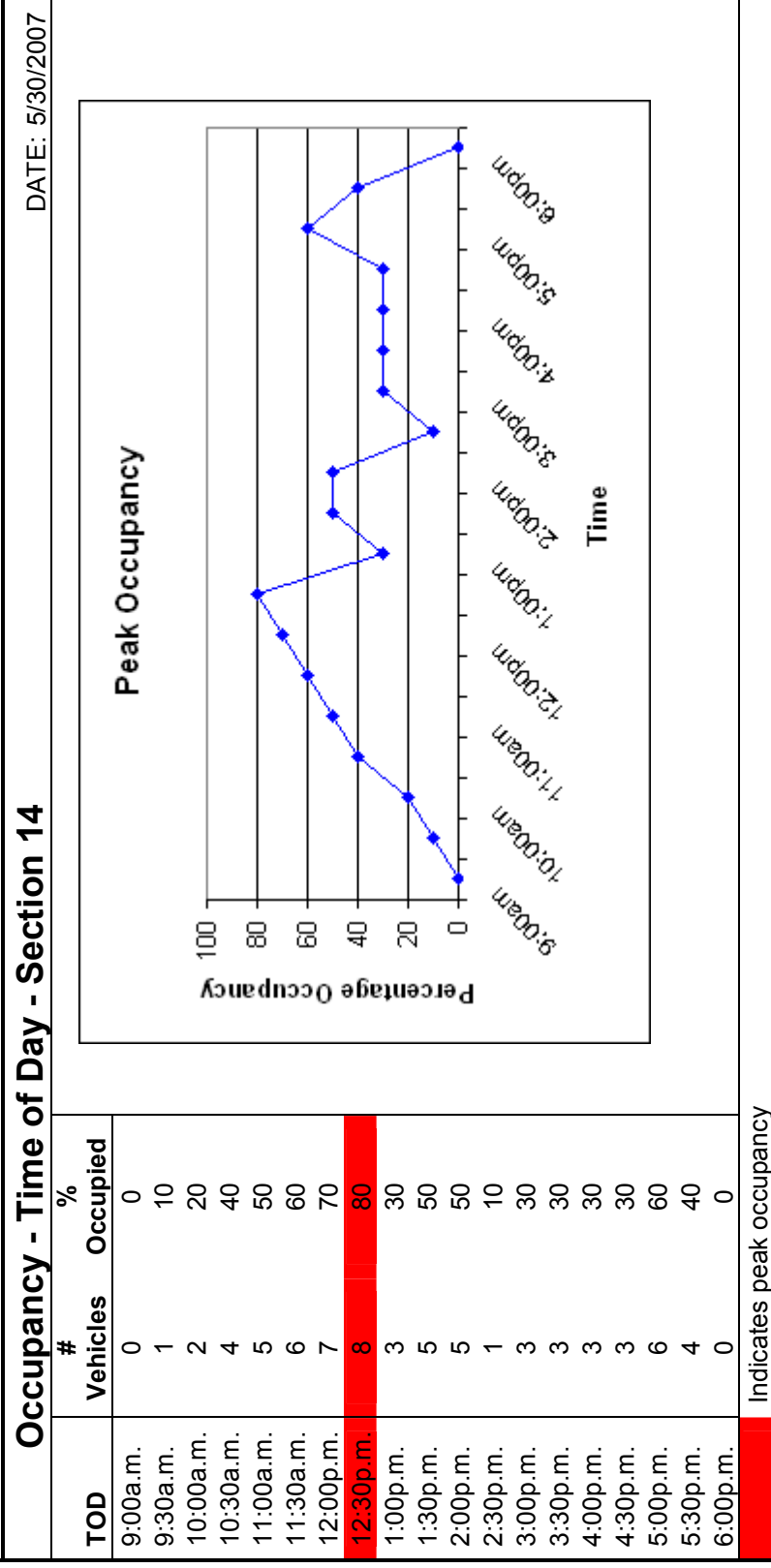
Total Spaces: 10
 Meter types: 10-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 10*9 = 90space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	32	78	16
1.00	8	20	8
1.50	0	0	0
2.00	1	2	2
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	41		26

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (26/90)*100 = 29%

Turn over = Tot. vehicles/ Tot. spaces = 41/10 = 4.1

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 26/41 = 0.63hrs



Analysis - On-Street Section 14

DATE: 5/30/2007

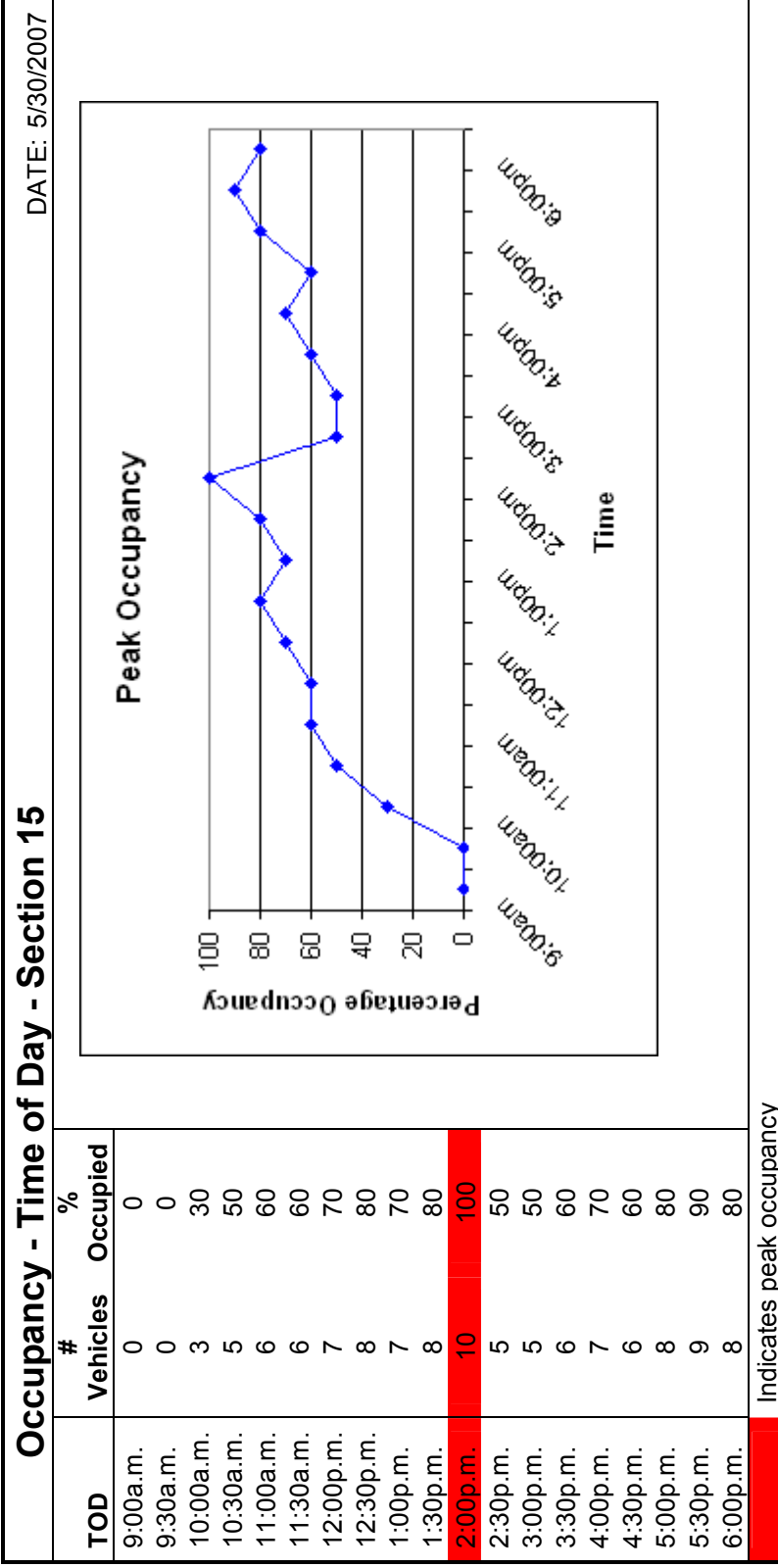
Total Spaces: 10
 Meter types: 10-3hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 10*9 = 90space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	26	70	13
1.00	4	11	4
1.50	4	11	6
2.00	1	3	2
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	1	3	4.5
5.00	1	3	5
5.50	0	0	0
Total	37		34.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (34.5/90)*100 = 38%

Turn over = Tot. vehicles/ Tot. spaces = 37/10 = 3.7

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 34.5/37 = 0.93hrs



Analysis - On-Street Section 15

DATE: 5/30/2007

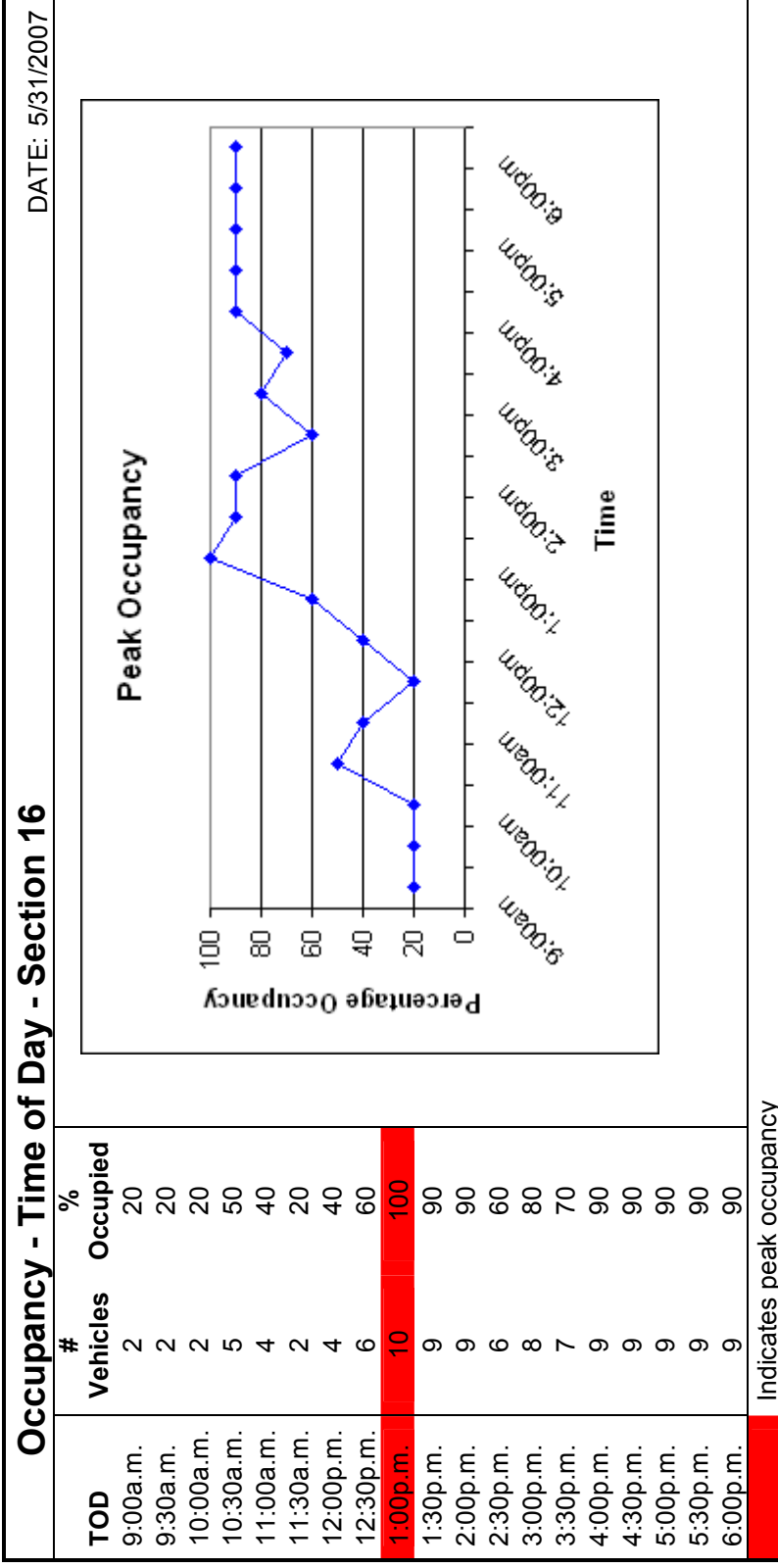
Total Spaces: 10
 Meter types: 10-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 10*9 = 90space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	25	63	12.5
1.00	5	13	5
1.50	5	13	7.5
2.00	1	3	2
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	1	3	5.5
6.00	1	3	6
6.50	0	0	0
7.00	1	3	7
7.50	1	3	7.5
Total	40		53

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (53/90)*100 = 59%

Turn over = Tot. vehicles/ Tot. spaces = 40/10 = 4.0

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 53/40 = 1.33hrs



Analysis - On-Street Section 16

DATE: 5/31/2007

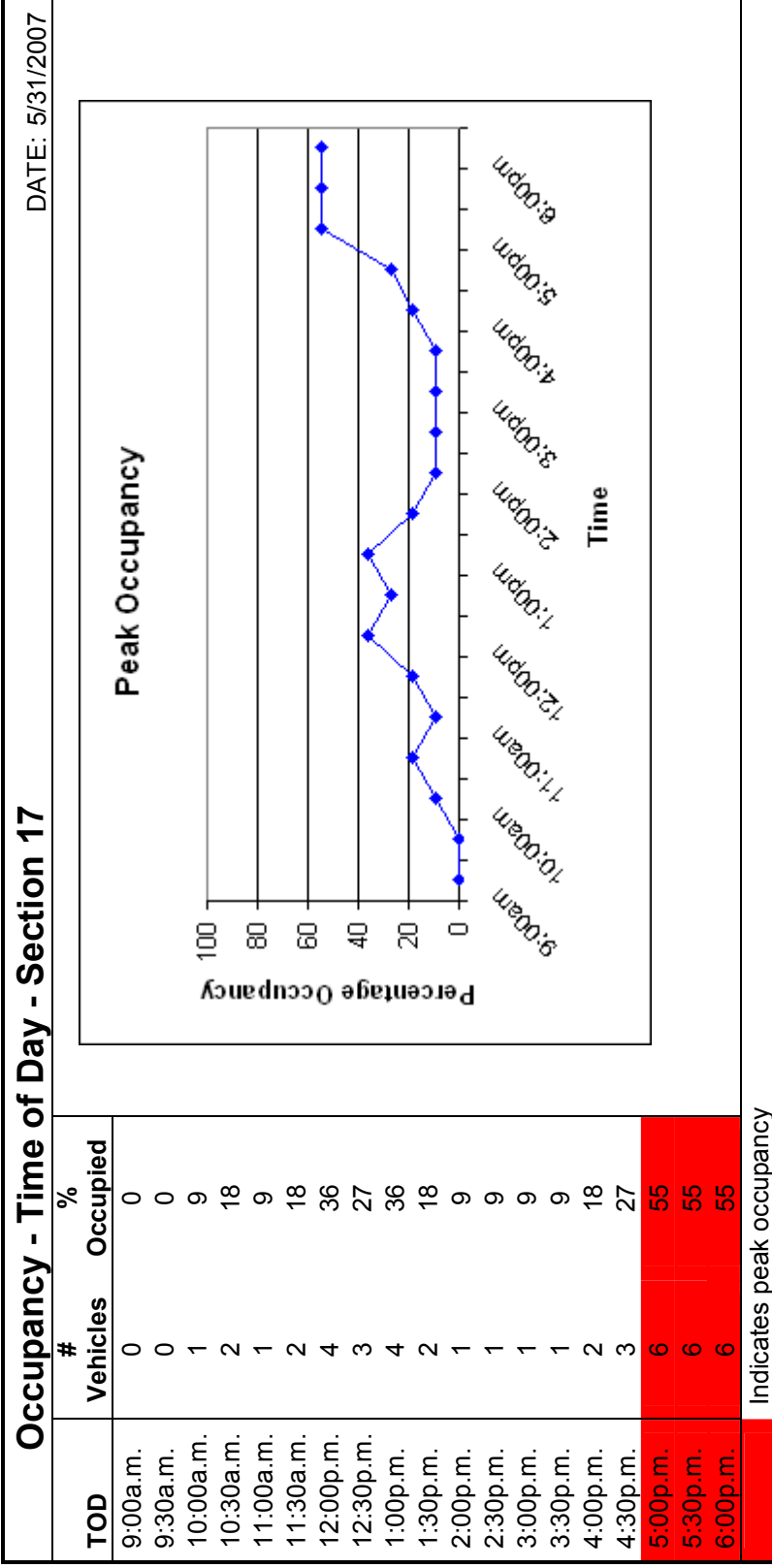
Total Spaces: 10
 Meter types: 10-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 10*9 = 90space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	8	24	4
1.00	10	29	10
1.50	4	12	6
2.00	4	12	8
2.50	4	12	10
3.00	0	0	0
3.50	1	3	3.5
4.00	2	6	8
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
6.00	0	0	0
6.50	1	3	6.5
Total	34		56

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (56/90)*100 = 62%

Turn over = Tot. vehicles/ Tot. spaces = 34/10 = 3.4

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 56/34 = 1.65hrs



Analysis - On-Street Section 17

DATE: 5/31/2007

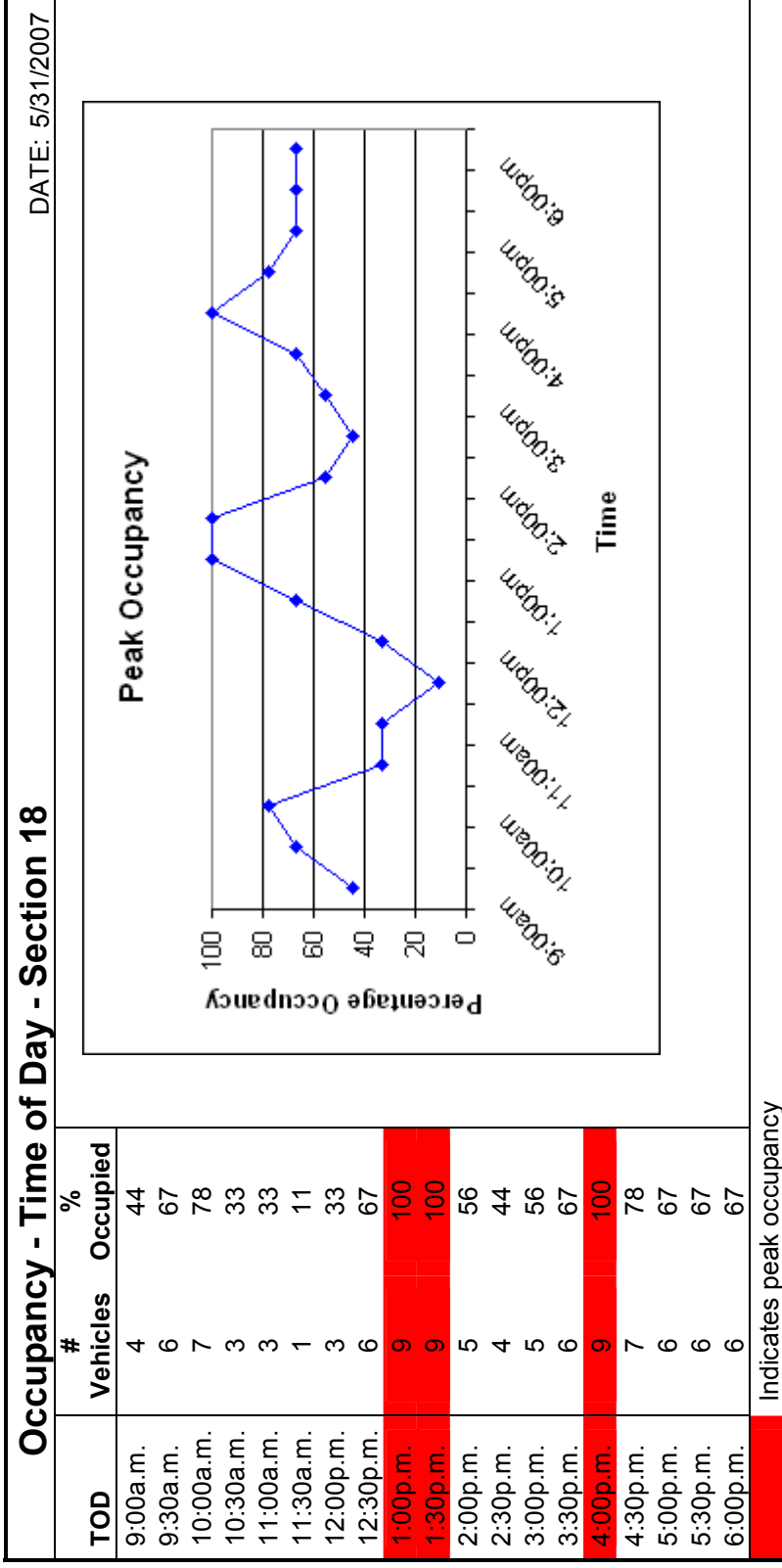
Total Spaces: 11
 Meter types: 11-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 11*9 = 99space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	3	20	1.5
1.00	6	40	6
1.50	3	20	4.5
2.00	1	7	2
2.50	1	7	2.5
3.00	0	0	0
3.50	1	7	3.5
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	15		20

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (20/99)*100 = 20%

Turn over = Tot. vehicles/ Tot. spaces = 15/11 = 1.36

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 20/15 = 1.33hrs



Analysis - On-Street Section 18

DATE: 5/31/2007

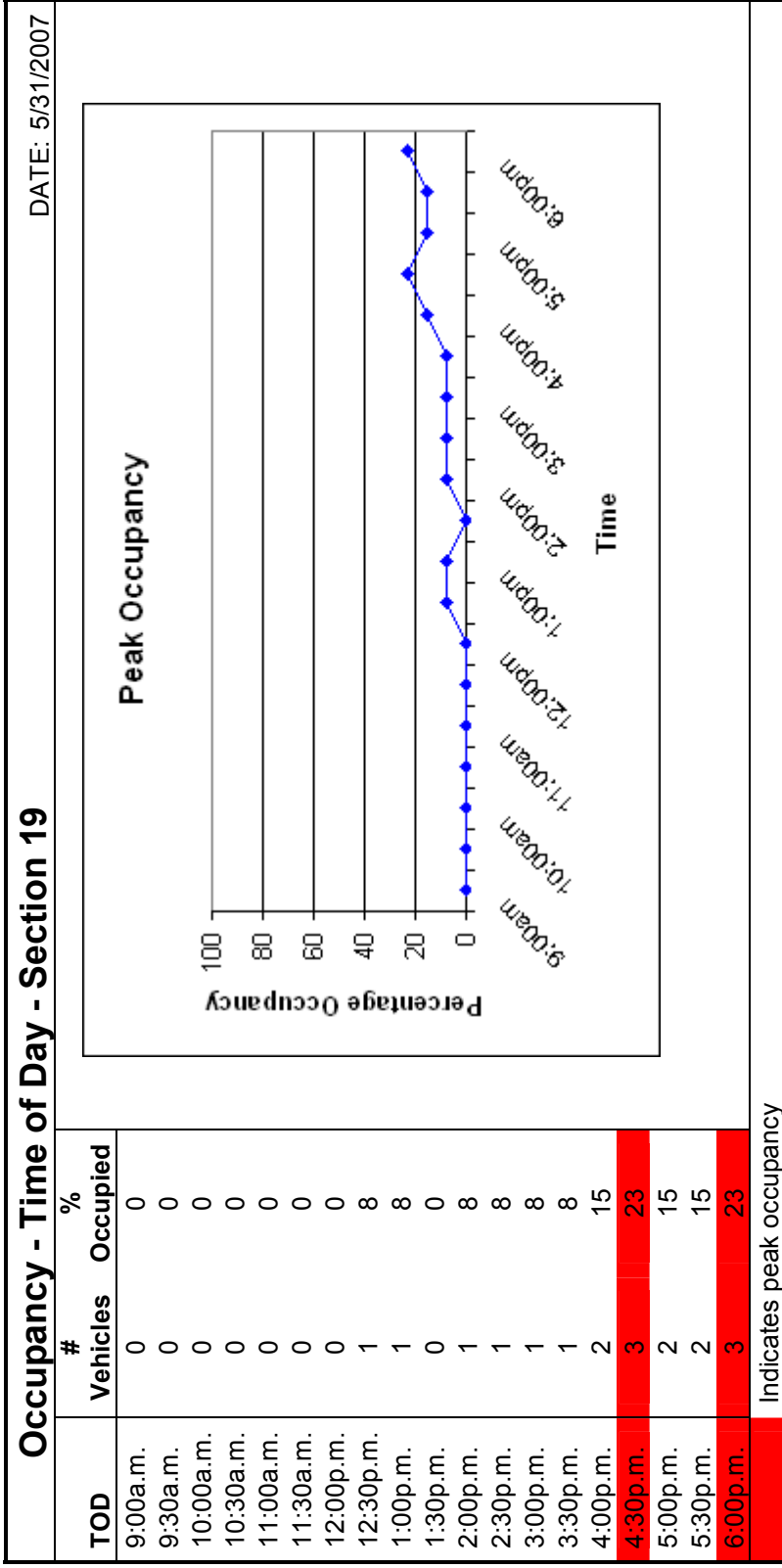
Total Spaces: 9
 Meter types: 9-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 9*9 = 81space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	12	29	6
1.00	17	40	17
1.50	7	17	10.5
2.00	2	5	4
2.50	2	5	5
3.00	1	2	3
3.50	0	0	0
4.00	1	2	4
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	42		49.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (49.5/81)*100 = 61%

Turn over = Tot. vehicles/ Tot. spaces = 42/9 = 4.67

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 49.5/42 = 1.18hrs



Analysis - On-Street Section 19

DATE: 5/31/2007

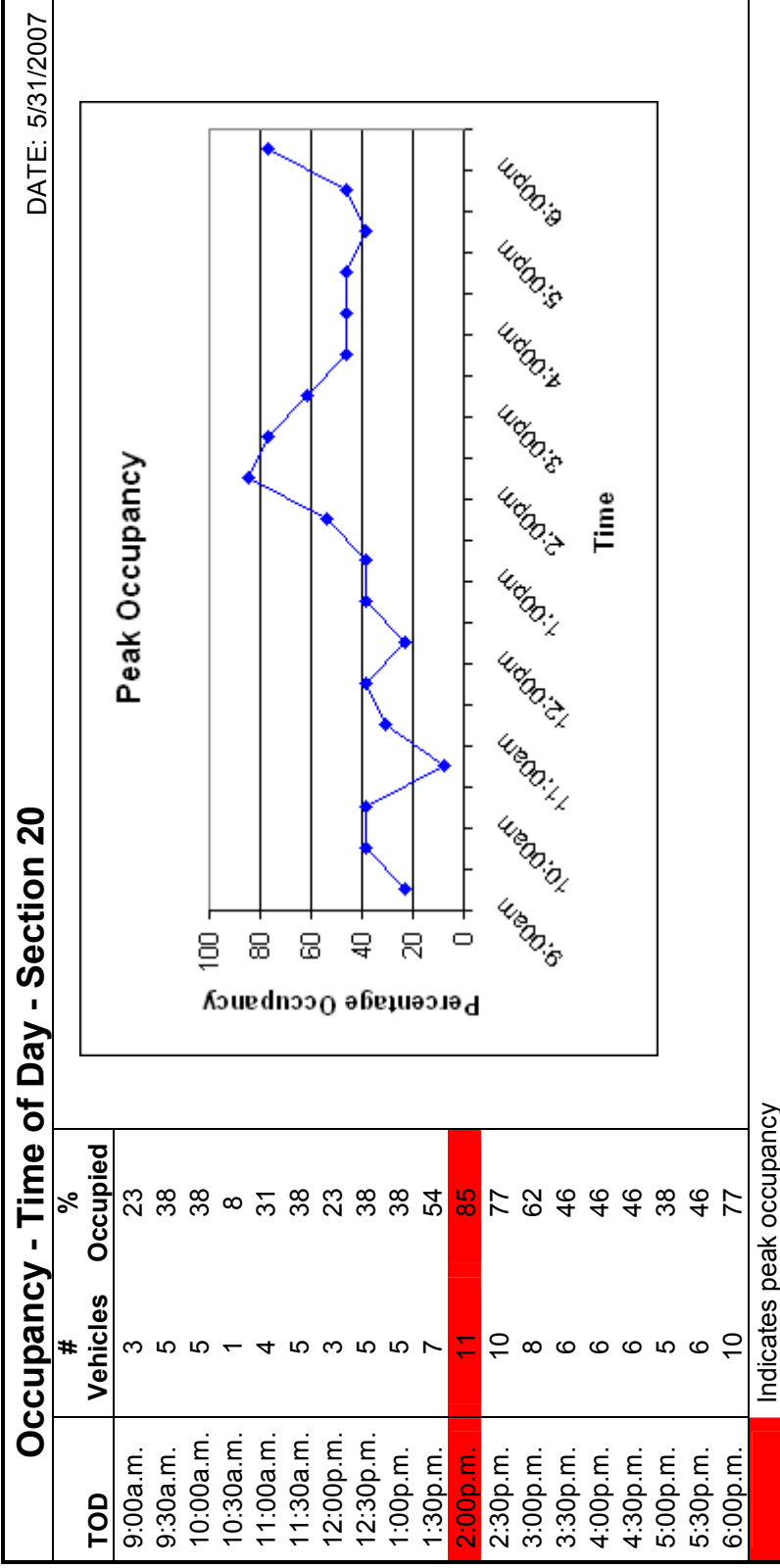
Total Spaces: 13
 Meter types: 13-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 13*9 = 117space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	0	0	0
1.00	1	25	1
1.50	1	25	1.5
2.00	1	25	2
2.50	0	0	0
3.00	1	25	3
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	4		7.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (7.5/117)*100 = 6%

Turn over = Tot. vehicles/ Tot. spaces = 4/13 = 0.31

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 7.5/4 = 1.88hrs



Analysis - On-Street Section 20

DATE: 5/31/2007

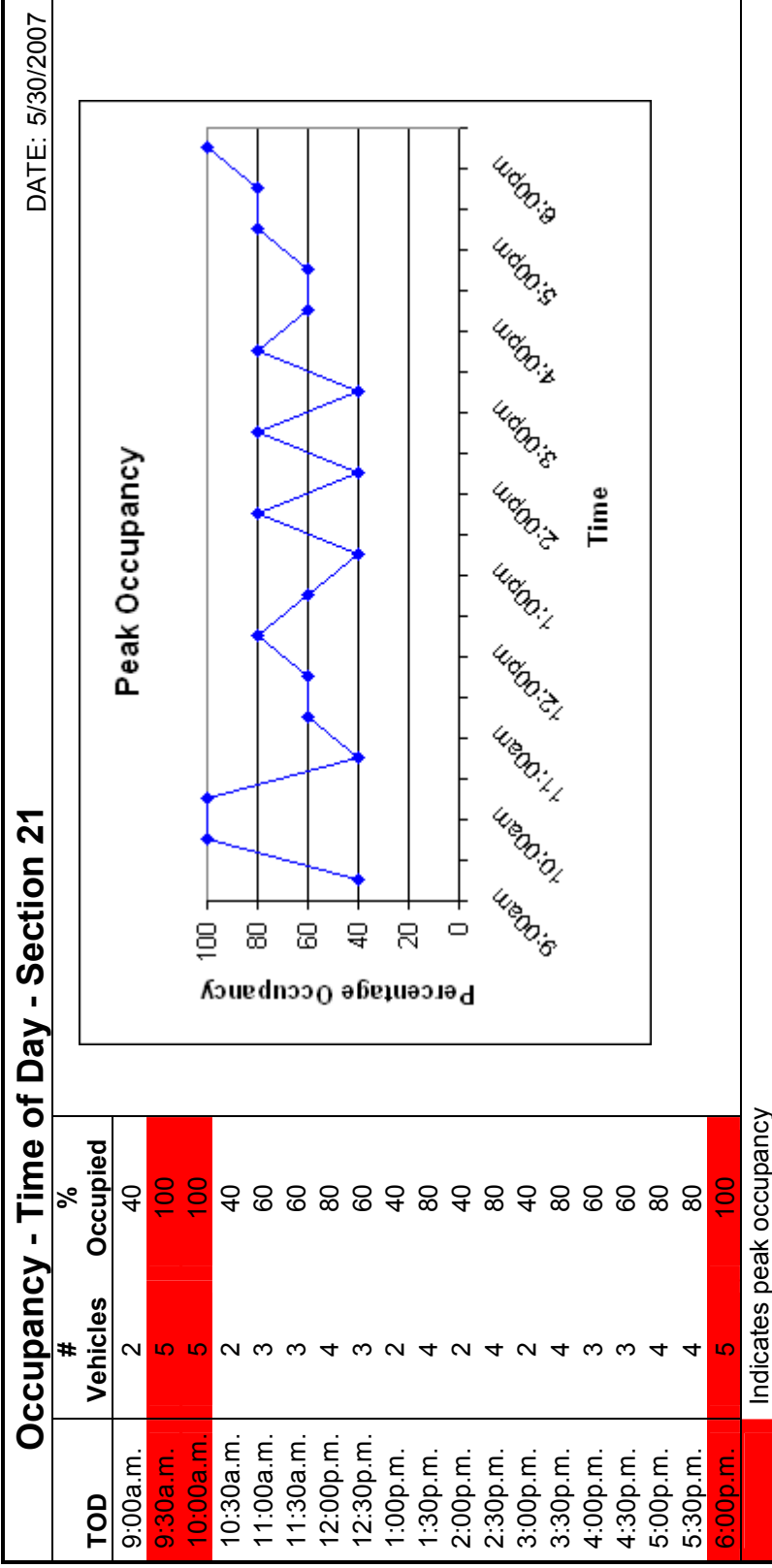
Total Spaces: 13
 Meter types: 13-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 13*9 = 117space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	24	52	12
1.00	8	17	8
1.50	7	15	10.5
2.00	1	2	2
2.50	3	7	7.5
3.00	0	0	0
3.50	0	0	0
4.00	1	2	4
4.50	0	0	0
5.00	1	2	5
5.50	1	2	5.5
Total	46		54.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (54.5/117)*100 = 47%

Turn over = Tot. vehicles/ Tot. spaces = 46/13 = 3.54

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 54.5/46 = 1.18hrs



Analysis - On-Street Section 21

DATE: 5/30/2007

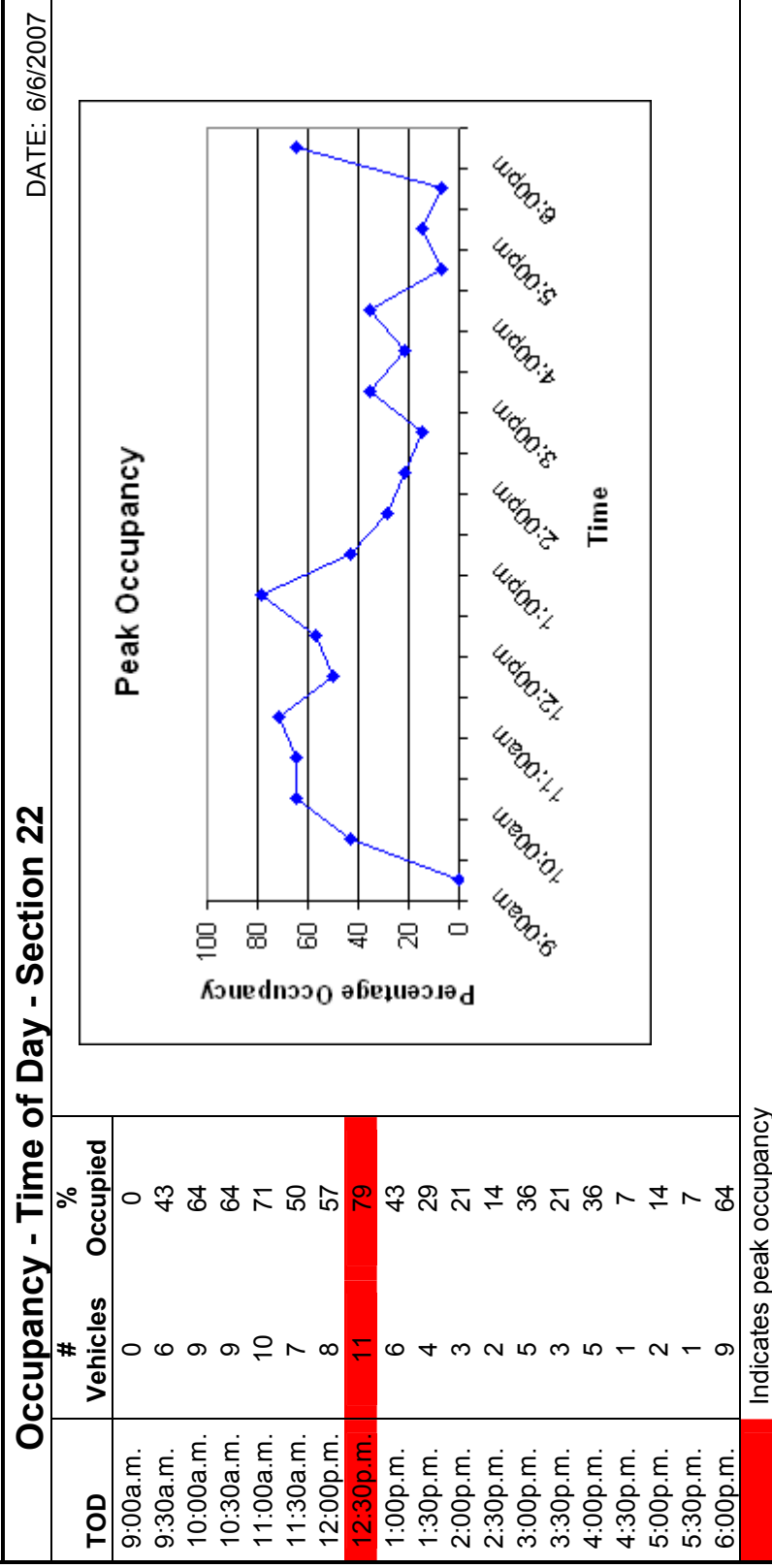
Total Spaces: 5
 Meter types: 5-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 5*9 = 45space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	10	36	5
1.00	8	29	8
1.50	7	25	10.5
2.00	2	7	4
2.50	1	4	2.5
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	28		30

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (30/45)*100 = 67%

Turn over = Tot. vehicles/ Tot. spaces = 28/5 = 5.6

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 30/28 = 1.07hrs



Analysis - On-Street Section 22

DATE: 6/6/2007

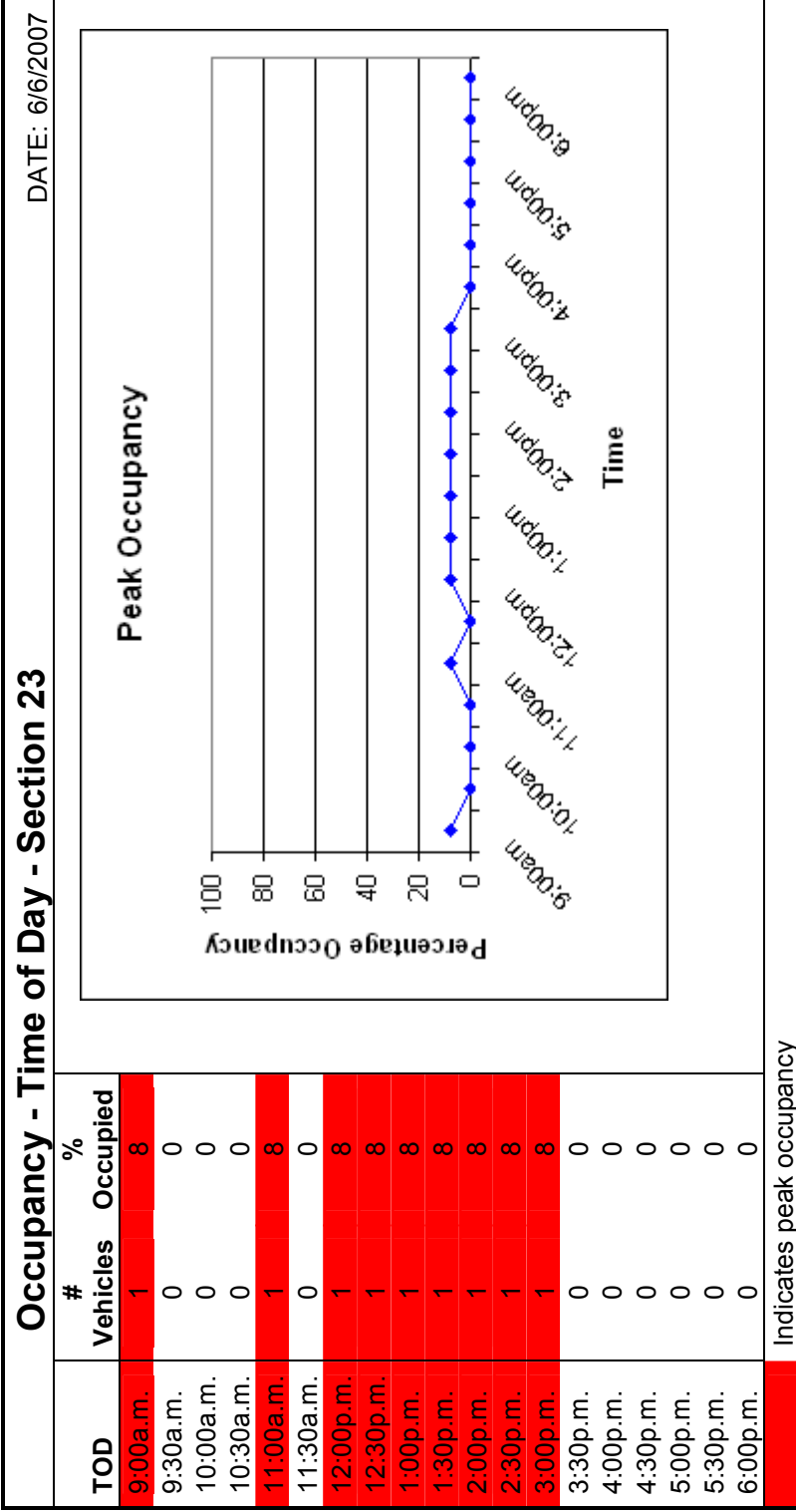
Total Spaces: 14
 Meter types: 14-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 =14*9 = 126

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	32	73	16
1.00	3	7	3
1.50	2	5	3
2.00	1	2	2
2.50	0	0	0
3.00	0	0	0
3.50	4	9	14
4.00	2	5	8
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	44		46

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (46/126)*100 = 37%

Turn over = Tot. vehicles/ Tot. spaces = 44/14 = 3.14

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 46/44 = 1.05hrs



Analysis - On-Street Section 23

DATE: 6/6/2007

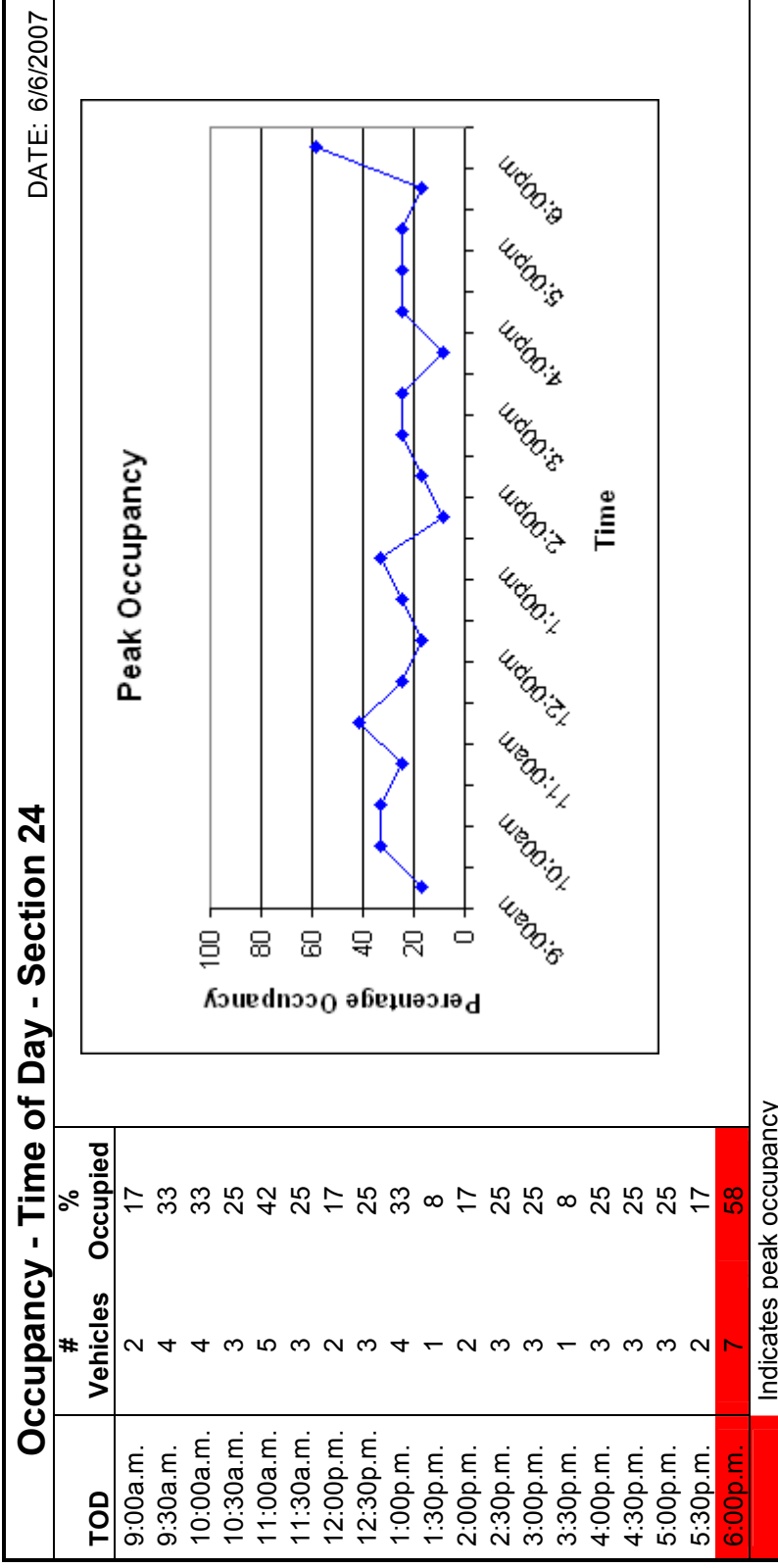
Total Spaces: 13
 Meter types: 13-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 13*9 = 117space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	2	50	1
1.00	1	25	1
1.50	0	0	0
2.00	0	0	0
2.50	1	25	2.5
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	4		4.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (4.5/117)*100 = 4%

Turn over = Tot. vehicles/ Tot. spaces = 4/13 = 0.3

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 4.5/4 = 1.13hrs



Analysis - On-Street Section 24

DATE: 6/6/2007

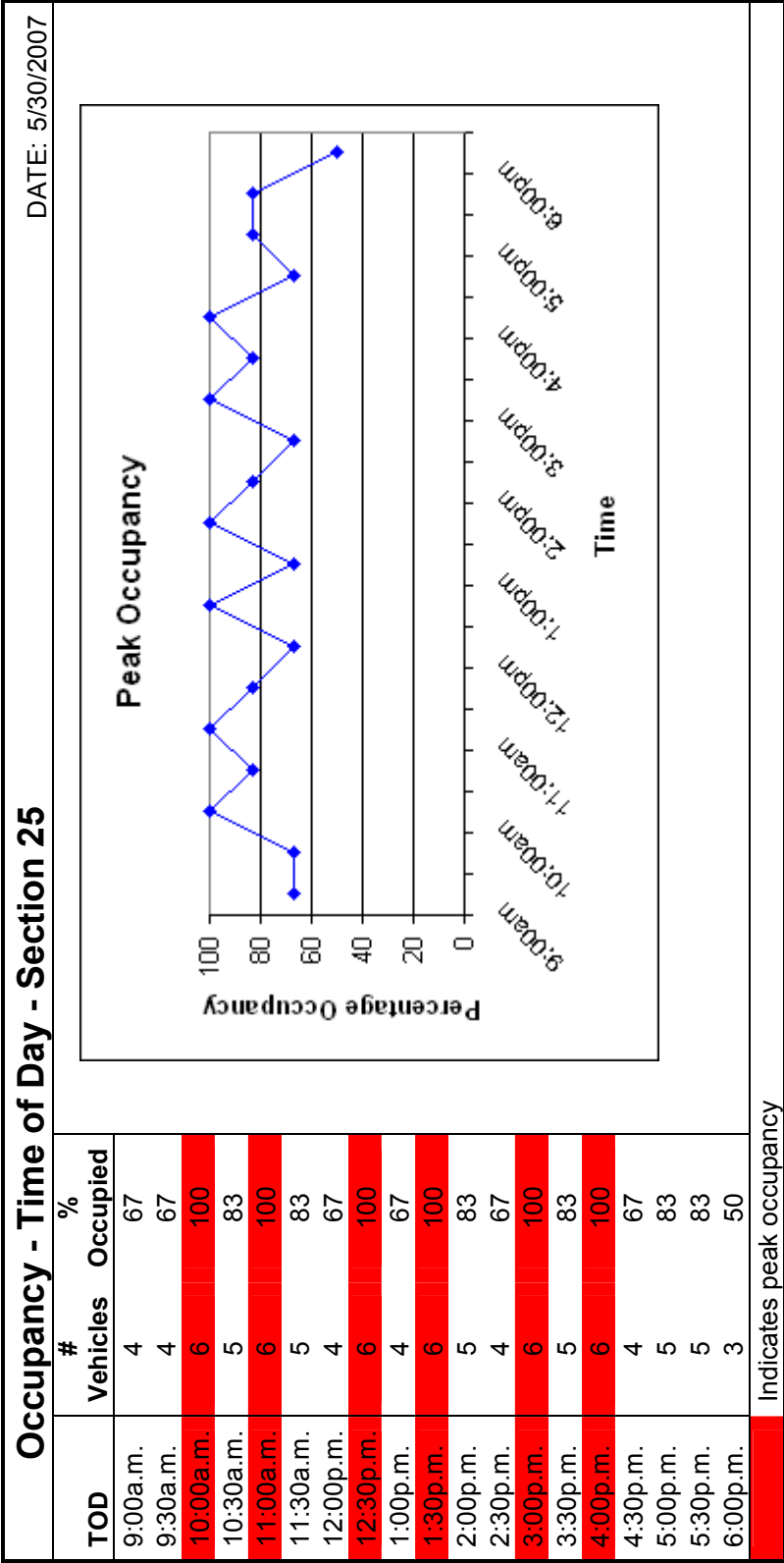
Total Spaces: 12
 Meter types: 12-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 12*9 = 108space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	3	23	1.5
1.00	3	23	3
1.50	2	15	3
2.00	2	15	4
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	1	8	4
4.50	1	8	4.5
5.00	0	0	0
5.50	1	8	5.5
Total	13		25.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (25.5/108)*100 = 24%

Turn over = Tot. vehicles/ Tot. spaces = 13/12 = 1.08

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 25.5/13 = 1.96hrs



Analysis - On-Street Section 25

DATE: 5/30/2007

Total Spaces: 6
 Meter types: 6-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 6*9 = 54space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	12	40	6
1.00	3	10	3
1.50	7	23	10.5
2.00	3	10	6
2.50	2	7	5
3.00	1	3	3
3.50	0	0	0
4.00	1	3	4
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
6.00	0	0	0
6.50	0	0	0
7.00	0	0	0
7.50	1	3	7.5
Total	30		45

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (45/54)*100 = 83%

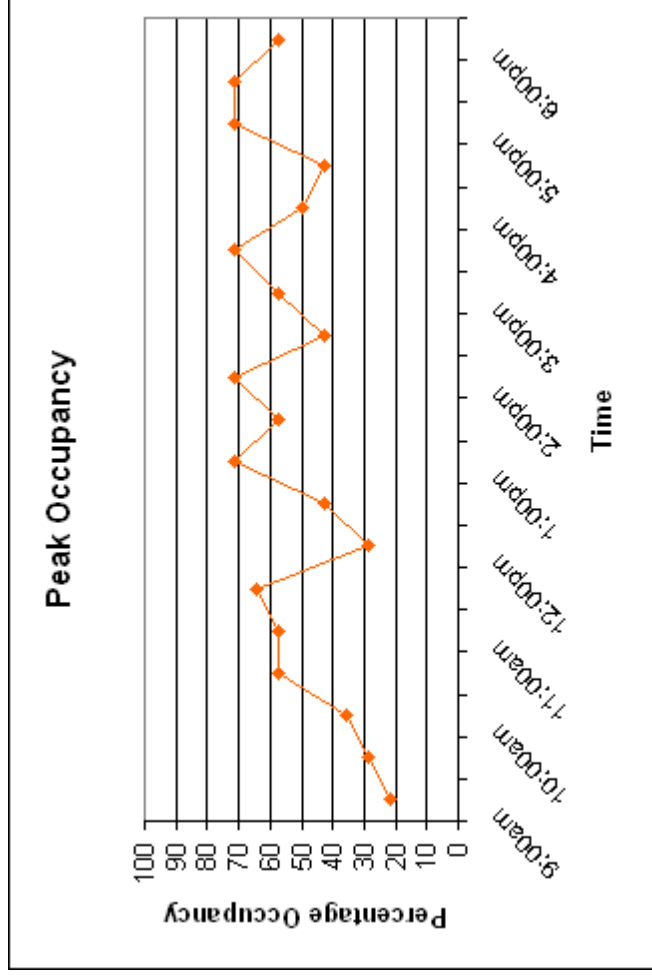
Turn over = Tot. vehicles/ Tot. spaces = 30/6 = 5.0

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 45/30 = 1.5hrs

Occupancy - Time of Day - Section 26

DATE: 5/30/2007

TOD	# Vehicles	% Occupied
9:00a.m.	3	21
9:30a.m.	4	29
10:00a.m.	5	36
10:30a.m.	8	57
11:00a.m.	8	57
11:30a.m.	9	64
12:00p.m.	4	29
12:30p.m.	6	43
1:00p.m.	10	71
1:30p.m.	8	57
2:00p.m.	10	71
2:30p.m.	6	43
3:00p.m.	8	57
3:30p.m.	10	71
4:00p.m.	7	50
4:30p.m.	6	43
5:00p.m.	10	71
5:30p.m.	10	71
6:00p.m.	8	57



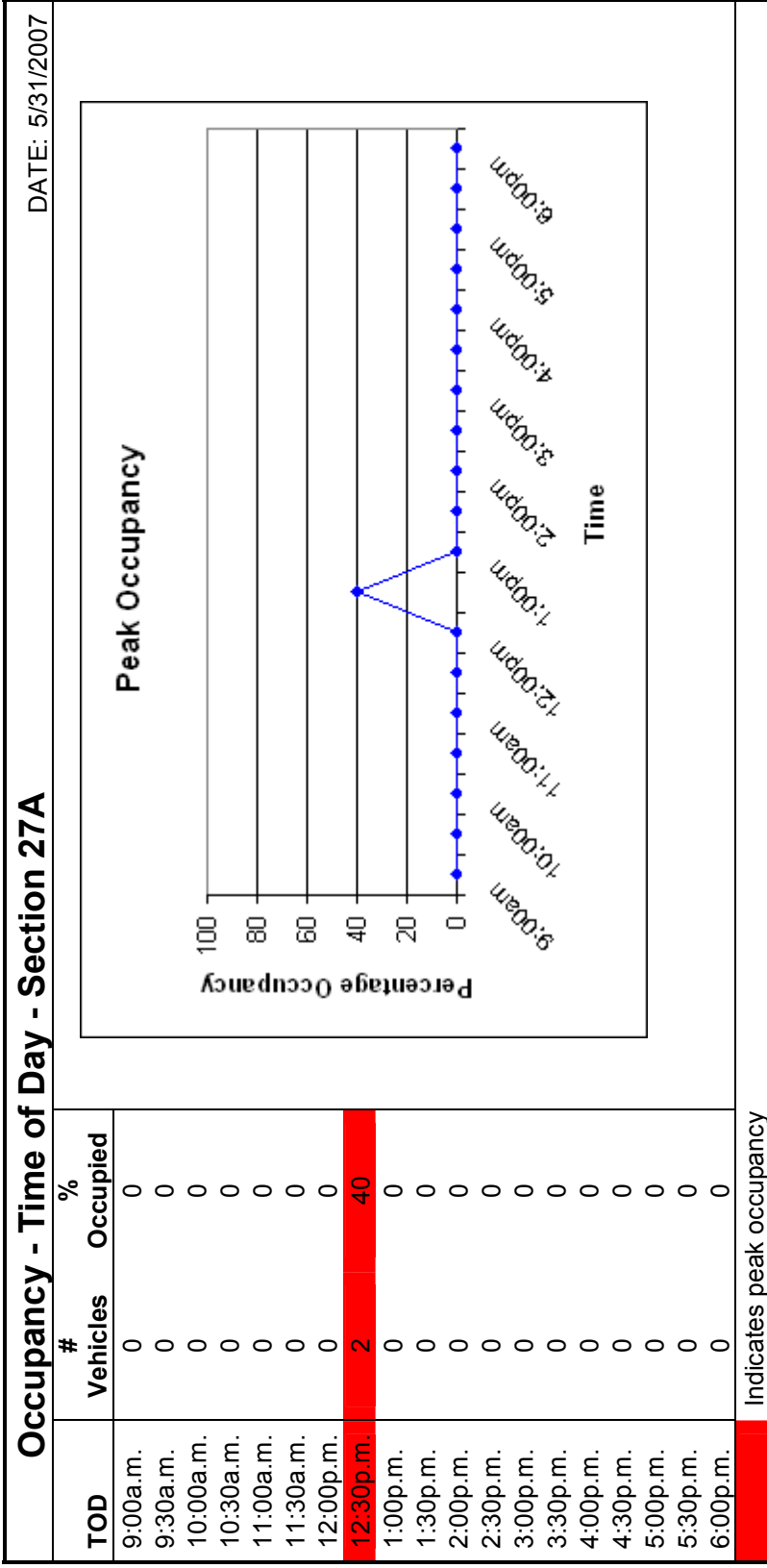
Indicates peak occupancy

Analysis - On-Street Section 26 DATE: 5/30/2007

Total Spaces: 14
 Meter types: 14-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 14*9 = 126space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	61	70	30.5
1.00	14	16	14
1.50	7	8	10.5
2.00	1	1	2
2.50	2	2	5
3.00	1	1	3
3.50	0	0	0
4.00	1	1	4
Total	87		69

Avg. % occupancy = (Tot. space-hrs Occupied/
 Availability)*100
 = (69/126)*100 = 55%
 Turn over = Tot. vehicles/ Tot. spaces = 87/14 = 6.21
 Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 69/87 = 0.79hrs



Analysis - On-Street Section 27a

DATE: 5/31/2007

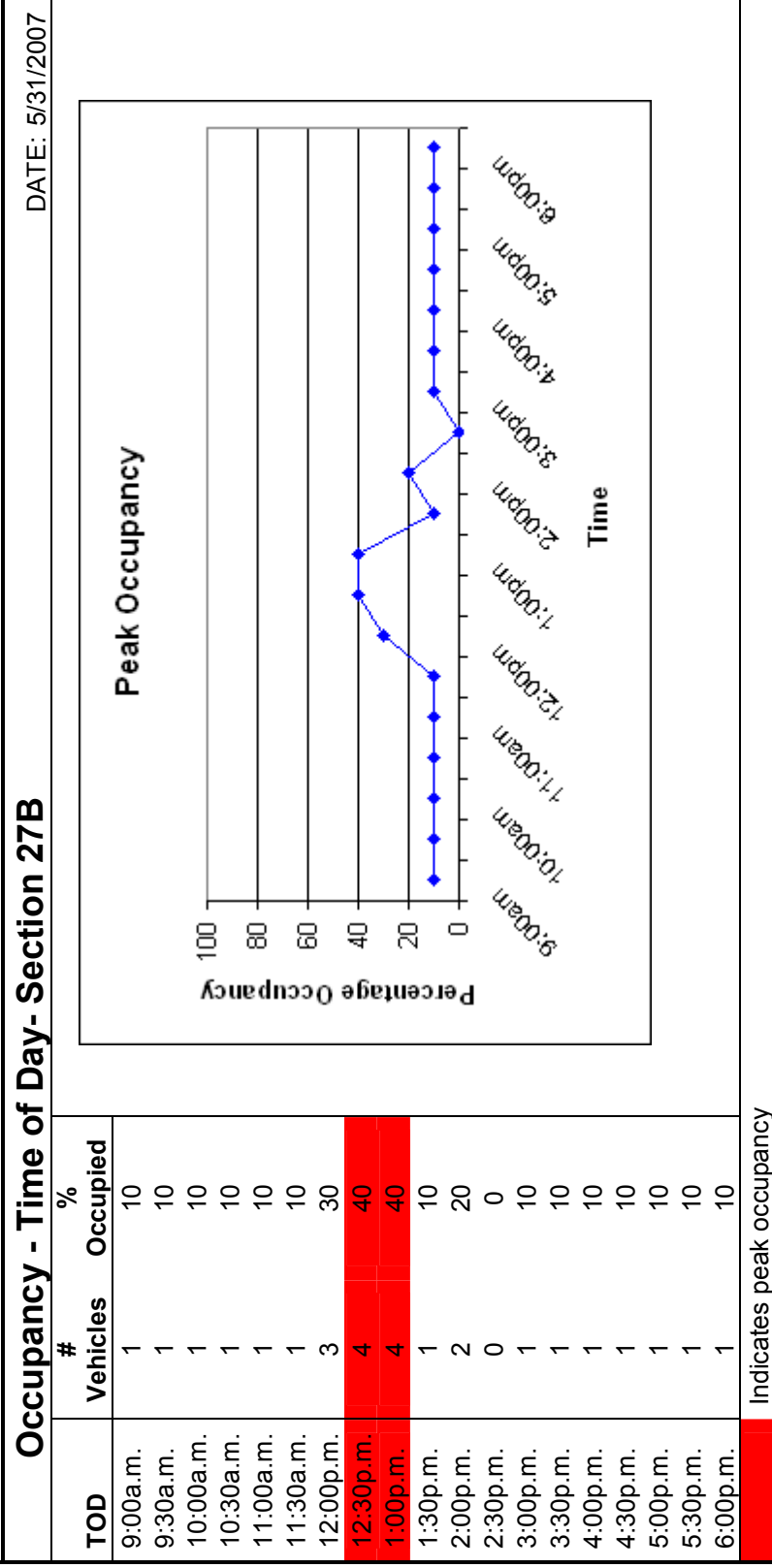
Total Spaces: 5
 Meter types: 5-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 5*9 = 45space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	2	100	1
1.00	0	0	0
1.50	0	0	0
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	2		1

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (1/45)*100 = 2%

Turn over = Tot. vehicles/ Tot. spaces = 2/5 = 0.4

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 1/2 = 0.5hrs



Analysis - On-Street Section 27b

DATE: 5/31/2007

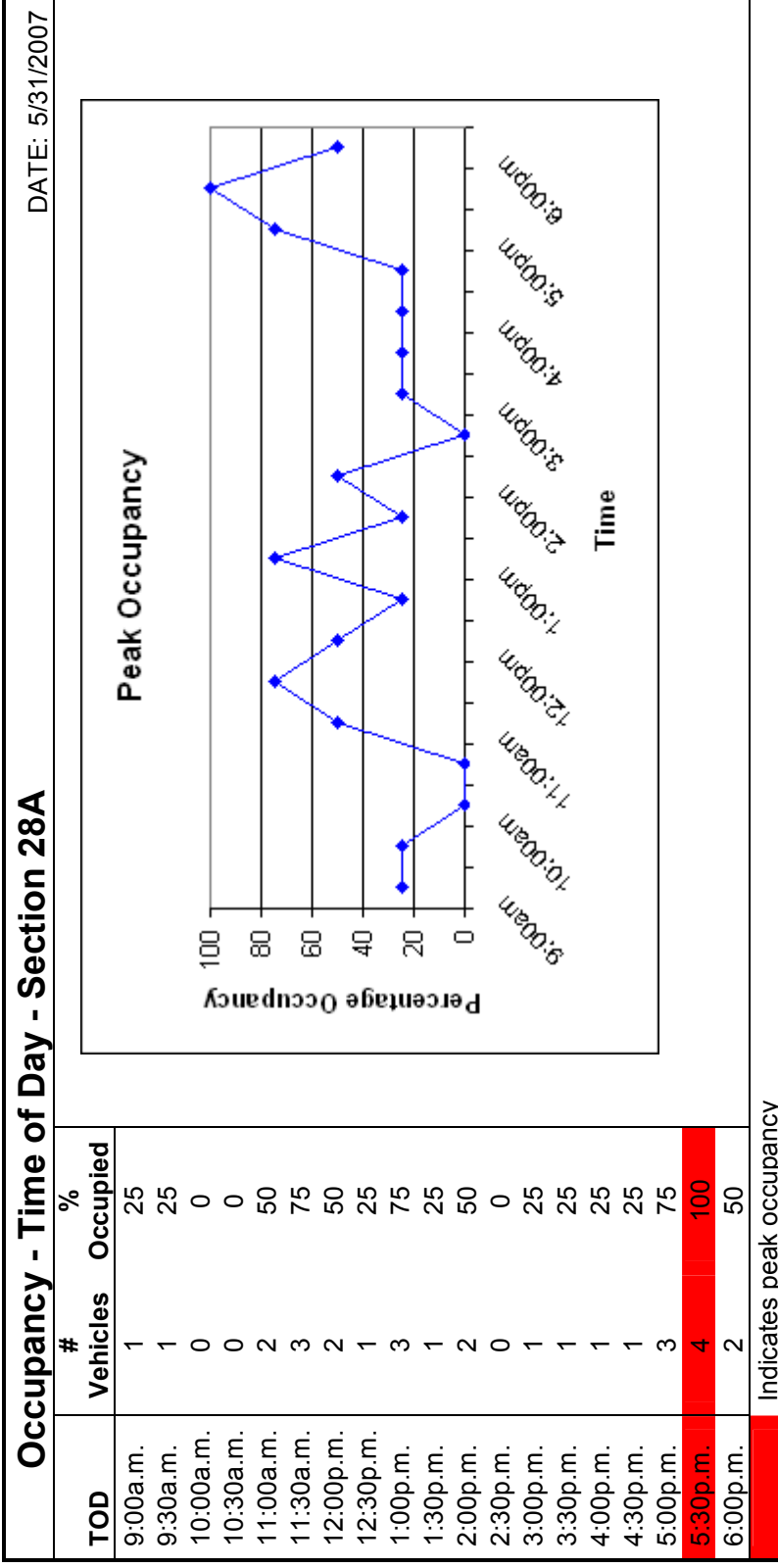
Total Spaces: 10
 Meter types: 10-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 10*9 = 90space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	4	44	2
1.00	2	22	2
1.50	1	11	1.5
2.00	0	0	0
2.50	0	0	0
3.00	1	11	3
3.50	0	0	0
4.00	0	0	0
4.50	1	11	4.5
5.00	0	0	0
5.50	0	0	0
Total	9		13

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (13/90)*100 = 14%

Turn over = Tot. vehicles/ Tot. spaces = 9/10 = 0.9

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 13/9 = 1.44hrs



Analysis - On-Street Section 28a

DATE: 5/31/2007

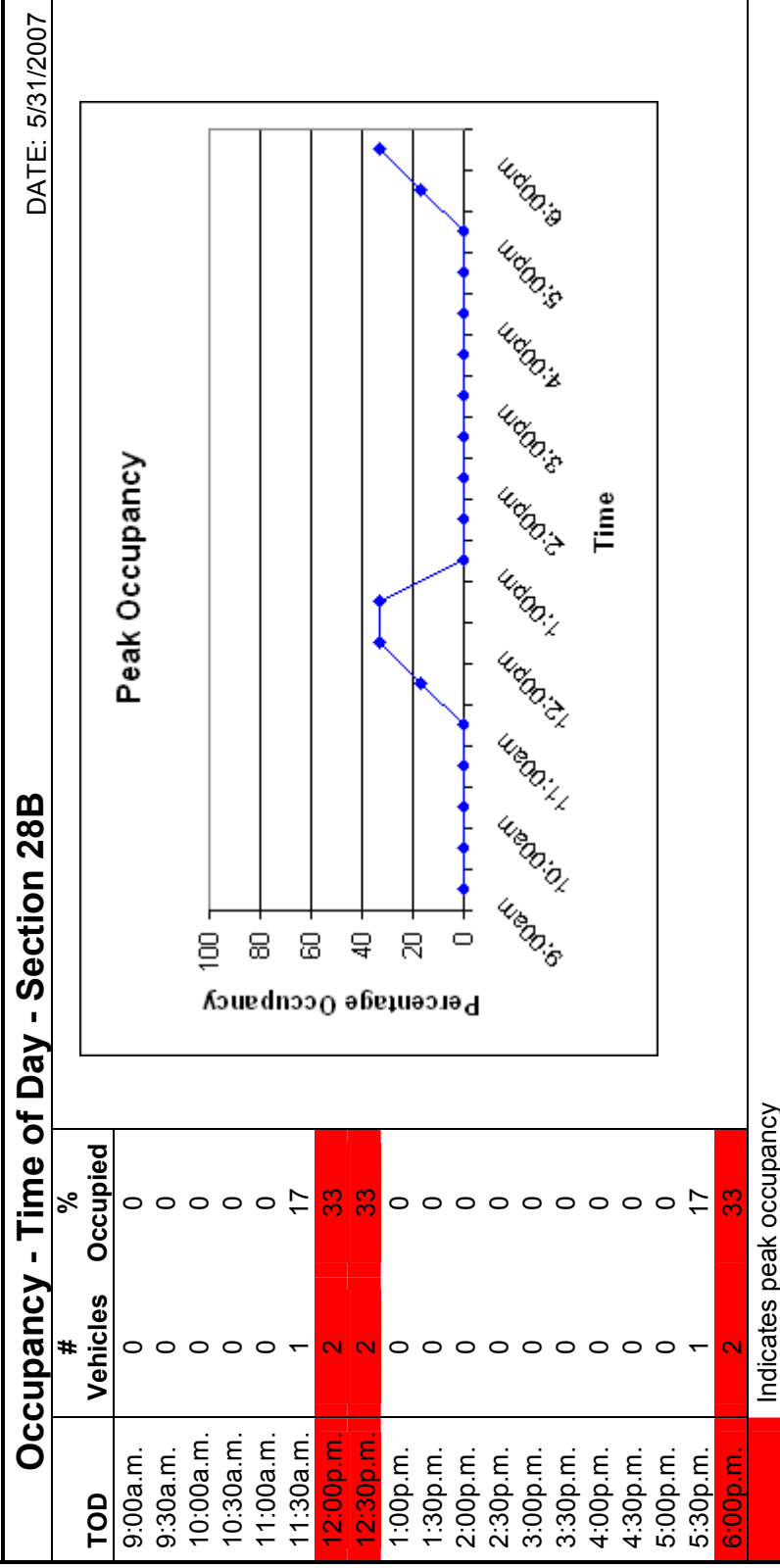
Total Spaces: 4
 Meter types: 4-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 4*9 = 36space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	7	47	3.5
1.00	5	33	5
1.50	2	13	3
2.00	1	7	2
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	15		13.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (13.5/36)*100 = 38%

Turn over = Tot. vehicles/ Tot. spaces = 15/4 = 3.75

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 13.5/15 = 0.90hrs



Analysis - On-Street Section 28b DATE: 5/31/2007

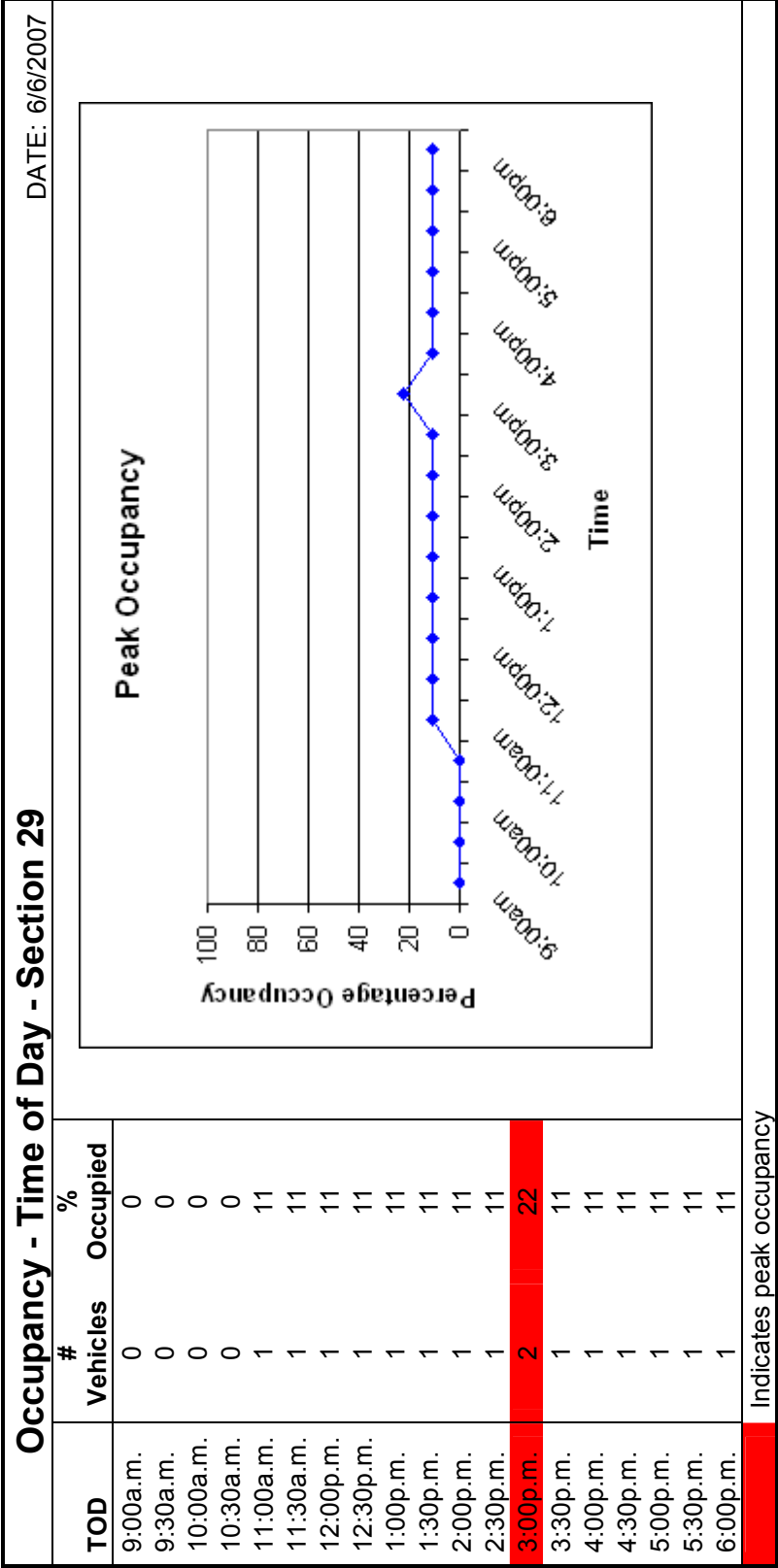
Total Spaces: 6
 Meter types: 6-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 6*9 = 54space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	2	50	1
1.00	2	50	2
1.50	0	0	0
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	4		3

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (3/54)*100 = 6%

Turn over = Tot. vehicles/ Tot. spaces = 4/6 = 0.67

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 3/4 = 0.75hrs



Analysis - On-Street Section 29

DATE: 6/6/2007

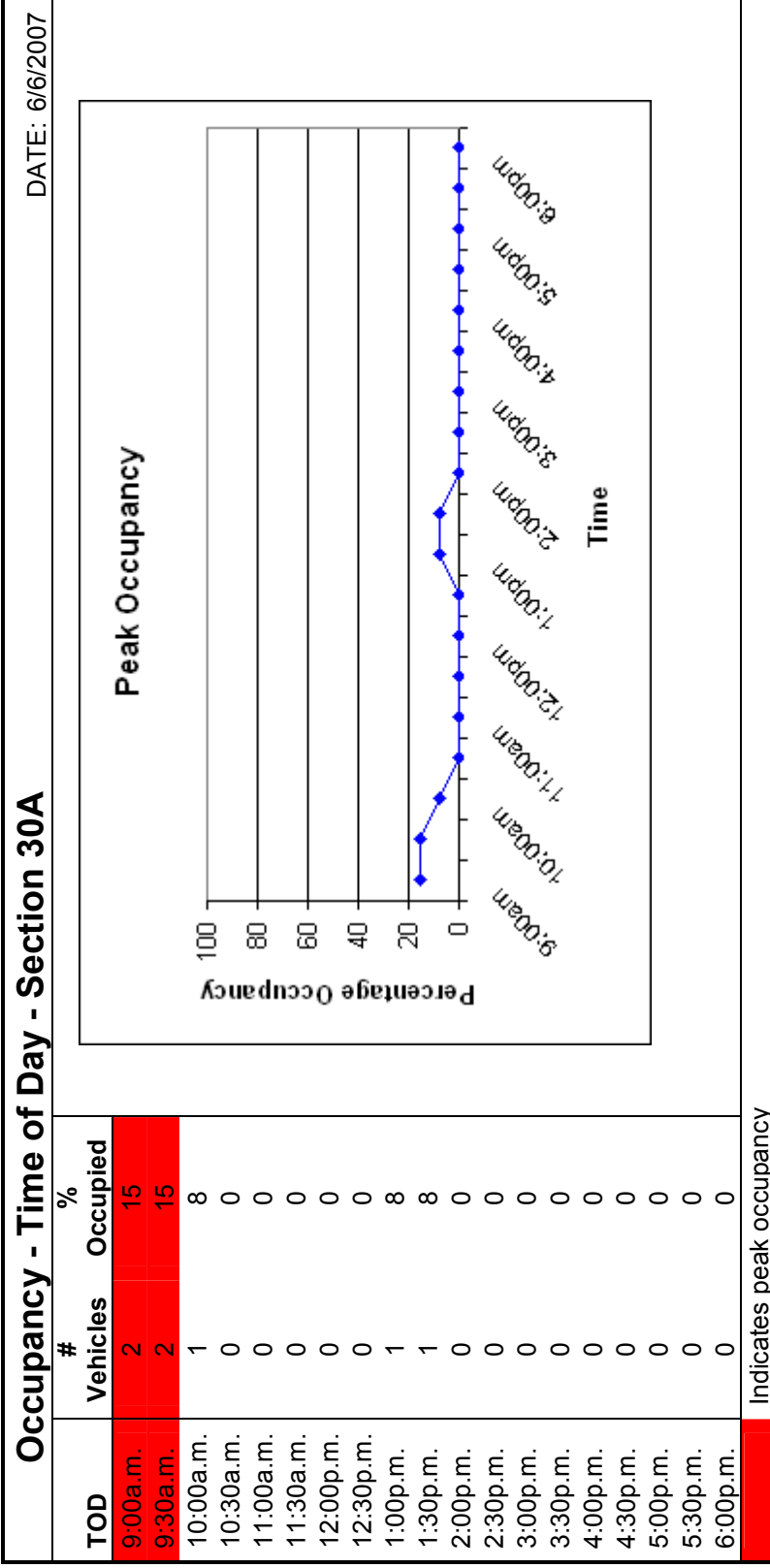
Total Spaces: 9
 Meter types: 9-9hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 9*9 = 81space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	1	50	0.5
1.00	0	0	0
1.50	0	0	0
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
6.00	0	0	0
6.50	0	0	0
7.00	1	50	7
Total	2		7.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (7.5/81)*100 = 9%

Turn over = Tot. vehicles/ Tot. spaces = 2/9 = 0.22

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 7.5/2 = 3.75hrs



Analysis - On-Street Section 30a

DATE: 6/6/2007

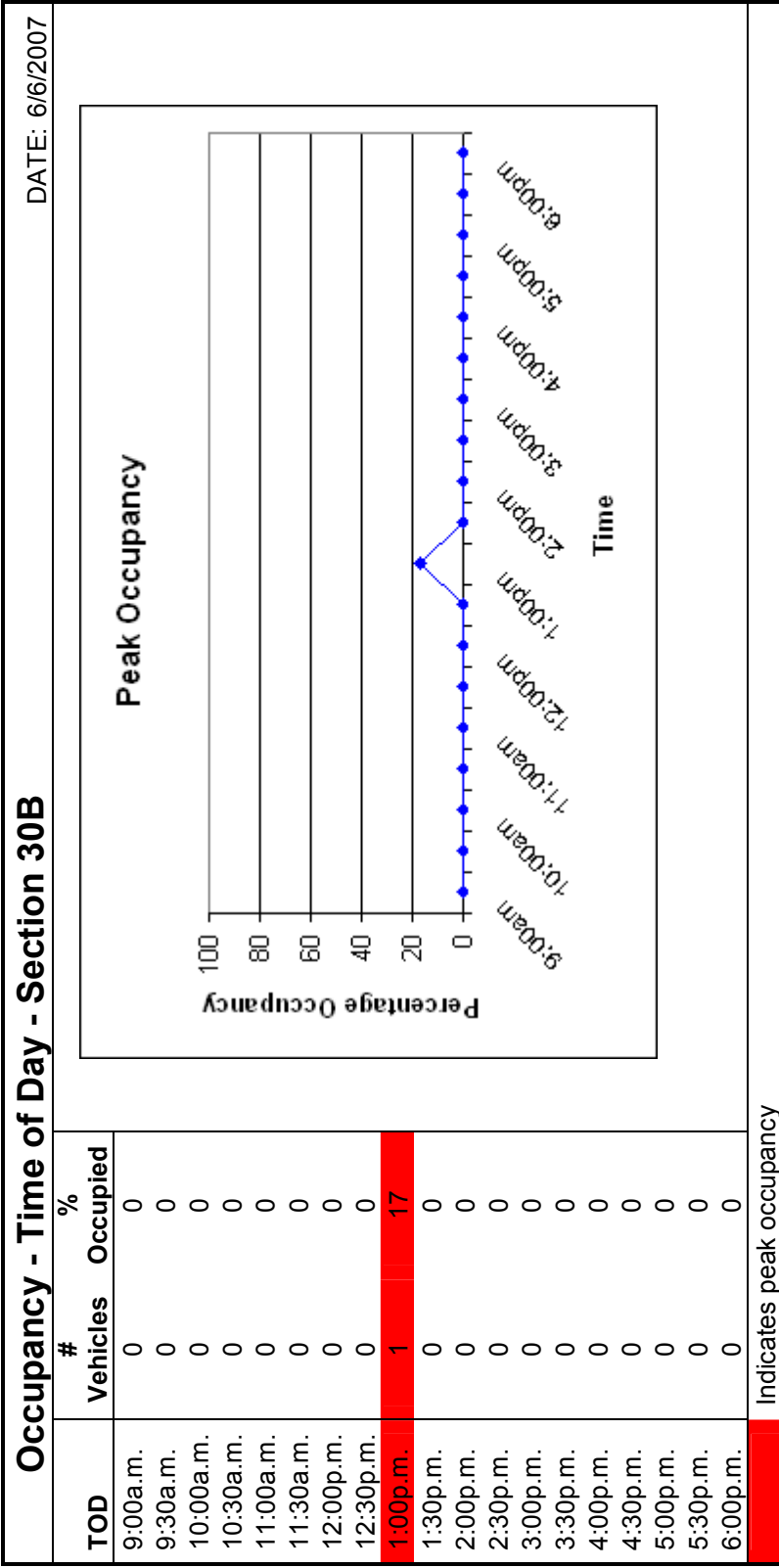
Total Spaces: 13
 Meter types: 13-9hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 13*9 = 117space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	2	7	1
1.00	1	4	1
1.50	1	4	1.5
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	4		3.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (3.5/117)*100 = 3%

Turn over = Tot. vehicles/ Tot. spaces = 4/13 = 0.32

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 3.5/4 = 0.88hrs



Analysis - On-Street Section 30b

DATE: 6/6/2007

Total Spaces: 6
 Meter types: 6-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 6*9 = 54space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	1	100	0.5
1.00	0	0	0
1.50	0	0	0
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	1		0.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (.5/54)*100 = 1%

Turn over = Tot. vehicles/ Tot. spaces = 1/6 = 0.167

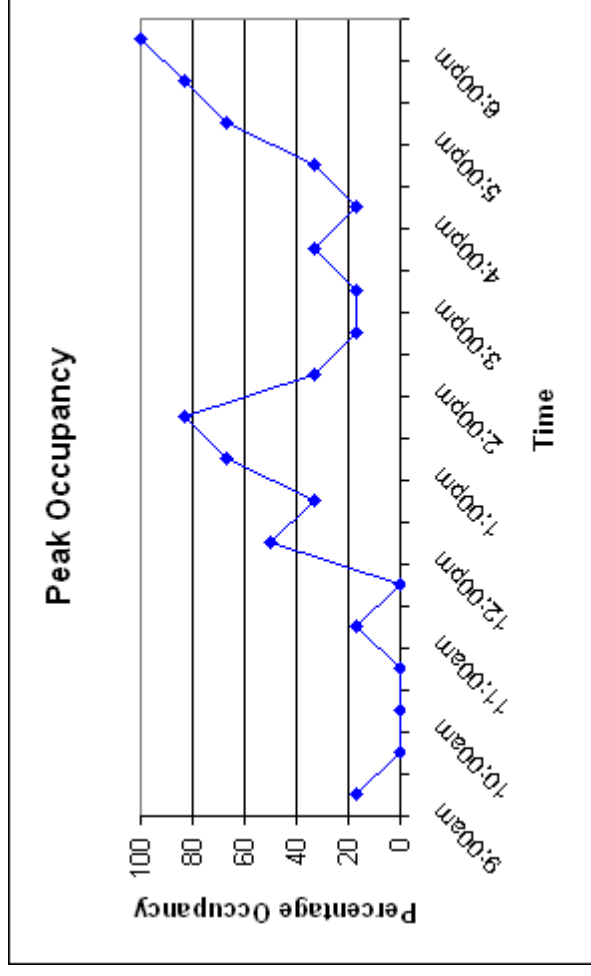
Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 0.5/1 = 0.50hrs

Occupancy - Time of Day - Section 31

DATE: 5/31/2007

TOD	# Vehicles	% Occupied
9:00a.m.	1	17
9:30a.m.	0	0
10:00a.m.	0	0
10:30a.m.	0	0
11:00a.m.	1	17
11:30a.m.	0	0
12:00p.m.	3	50
12:30p.m.	2	33
1:00p.m.	4	67
1:30p.m.	5	83
2:00p.m.	2	33
2:30p.m.	1	17
3:00p.m.	1	17
3:30p.m.	2	33
4:00p.m.	1	17
4:30p.m.	2	33
5:00p.m.	4	67
5:30p.m.	5	83
6:00p.m.	6	100

Indicates peak occupancy



Analysis - On-Street Section 31

DATE: 5/31/2007

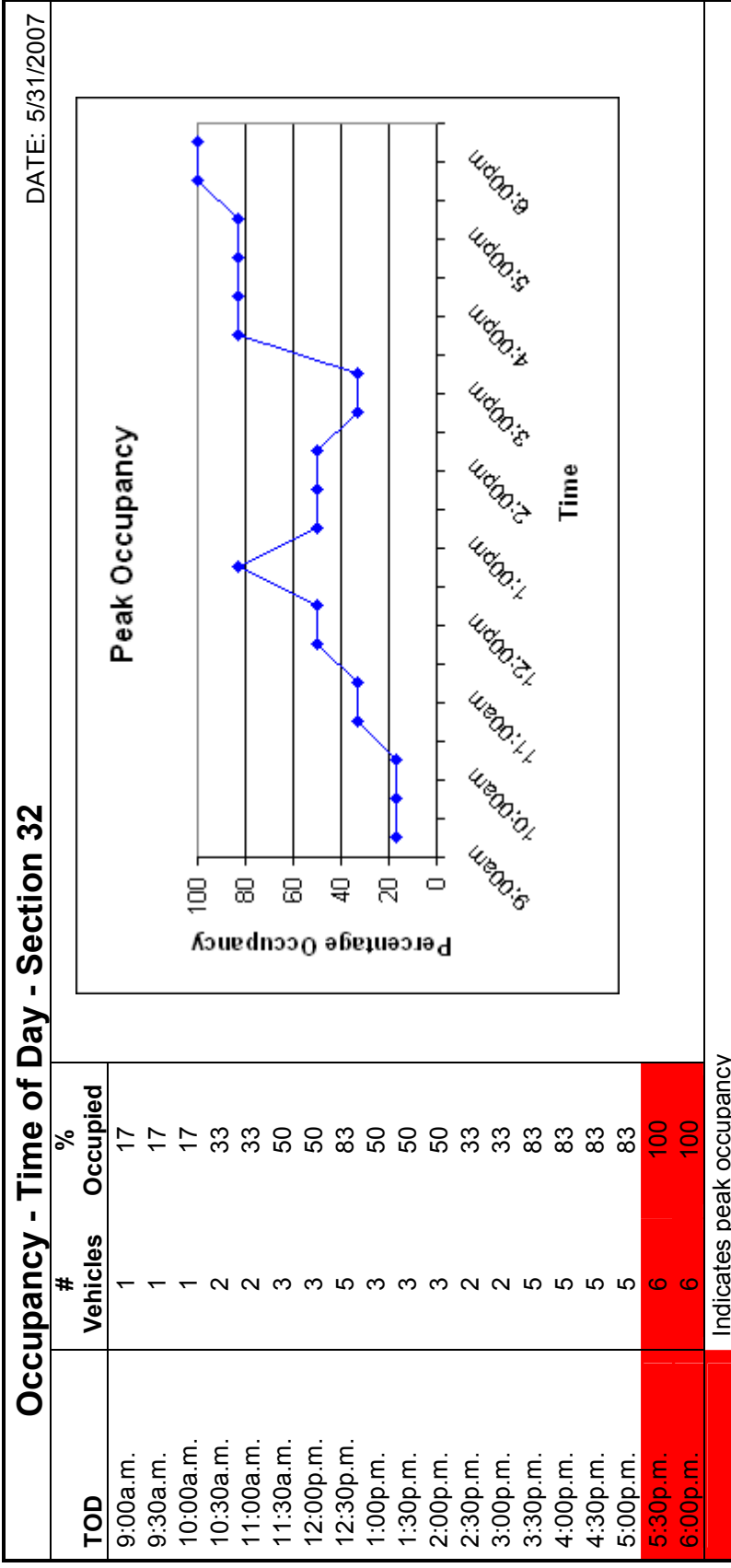
Total Spaces: 6
 Meter types: 6-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 6*9 = 54space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	10	48	5
1.00	9	43	9
1.50	2	10	3
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	21		17

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (17/54)*100 = 31%

Turn over = Tot. vehicles/ Tot. spaces = 21/6 = 3.5

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 17/21 = 0.81hrs



Analysis - On-Street Section 32

DATE: 5/31/2007

Total Spaces: 6
 Meter types: 6-2hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 6*9 = 54space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	4	25	2
1.00	4	25	4
1.50	1	6	1.5
2.00	2	13	4
2.50	2	13	5
3.00	1	6	3
3.50	1	6	3.5
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	1	6	5.5
Total	16		28.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (28.5/54)*100 = 53%

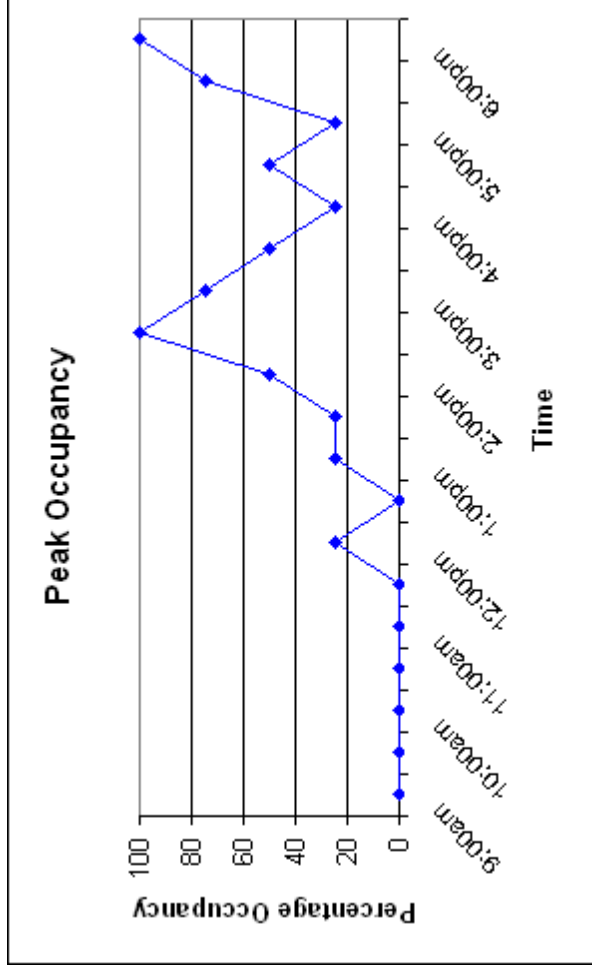
Turn over = Tot. vehicles/ Tot. spaces = 16/6 = 2.67

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 28.5/16 = 1.78hrs

Occupancy - Time of Day - Section 33

DATE: 5/31/2007

TOD	# Vehicles	% Occupied
9:00a.m.	0	0
9:30a.m.	0	0
10:00a.m.	0	0
10:30a.m.	0	0
11:00a.m.	0	0
11:30a.m.	0	0
12:00p.m.	1	25
12:30p.m.	0	0
1:00p.m.	1	25
1:30p.m.	1	25
2:00p.m.	2	50
2:30p.m.	4	100
3:00p.m.	3	75
3:30p.m.	2	50
4:00p.m.	1	25
4:30p.m.	2	50
5:00p.m.	1	25
5:30p.m.	3	75
6:00p.m.	4	100



Indicates peak occupancy

Analysis - On-Street Section 33

DATE: 5/31/2007

Total Spaces: 4
 Meter types: 4-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 4*9 = 36space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	5	50	2.5
1.00	2	20	2
1.50	1	10	1.5
2.00	1	10	2
2.50	1	10	2.5
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	10		10.5

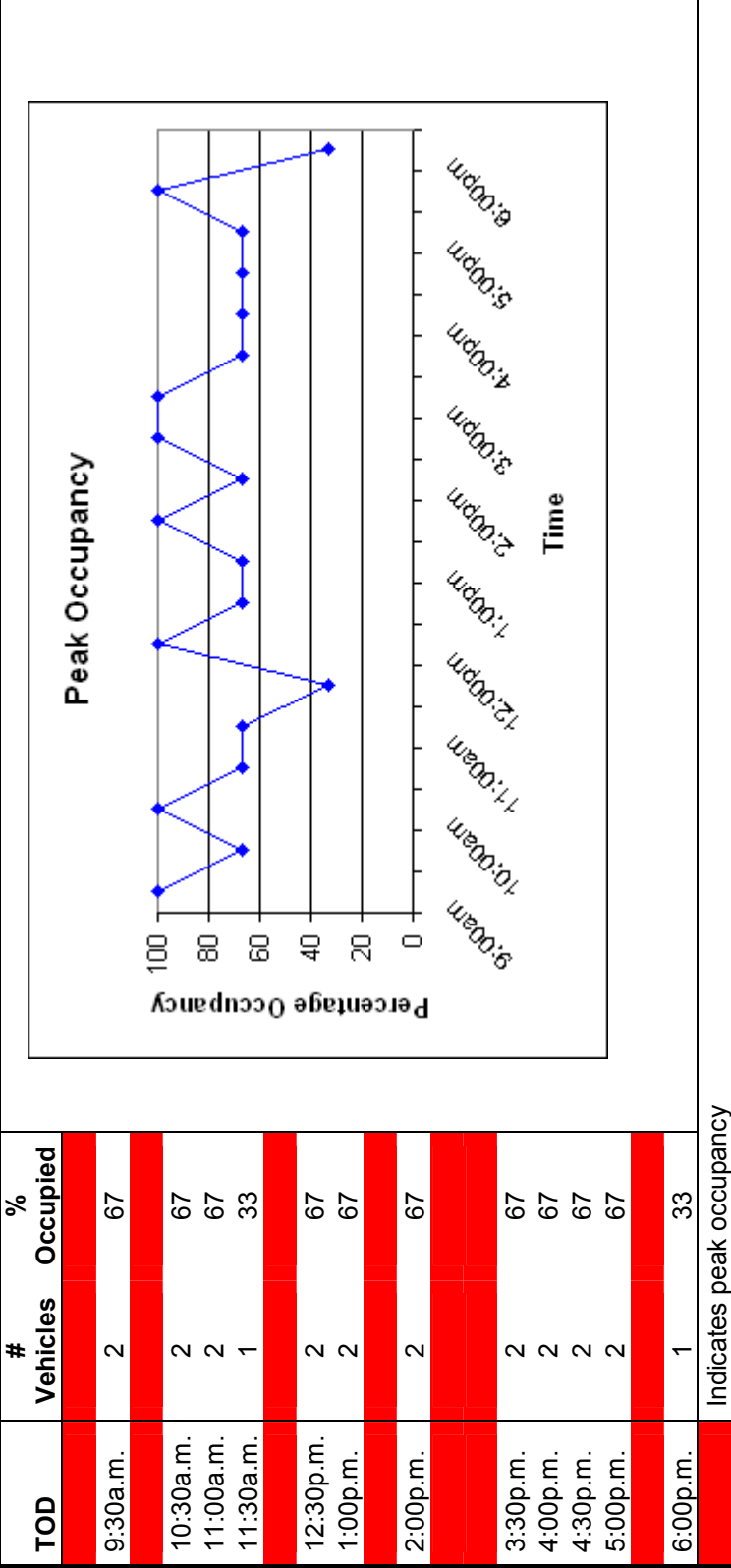
Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (10.5/36)*100 = 29%

Turn over = Tot. vehicles/ Tot. spaces = 10/4 =2.5

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 10.5/10 = 1.05hrs

Occupancy - Time of Day - Section 34

DATE: 5/31/2007



Analysis - On-Street Section 34

DATE: 5/31/2007

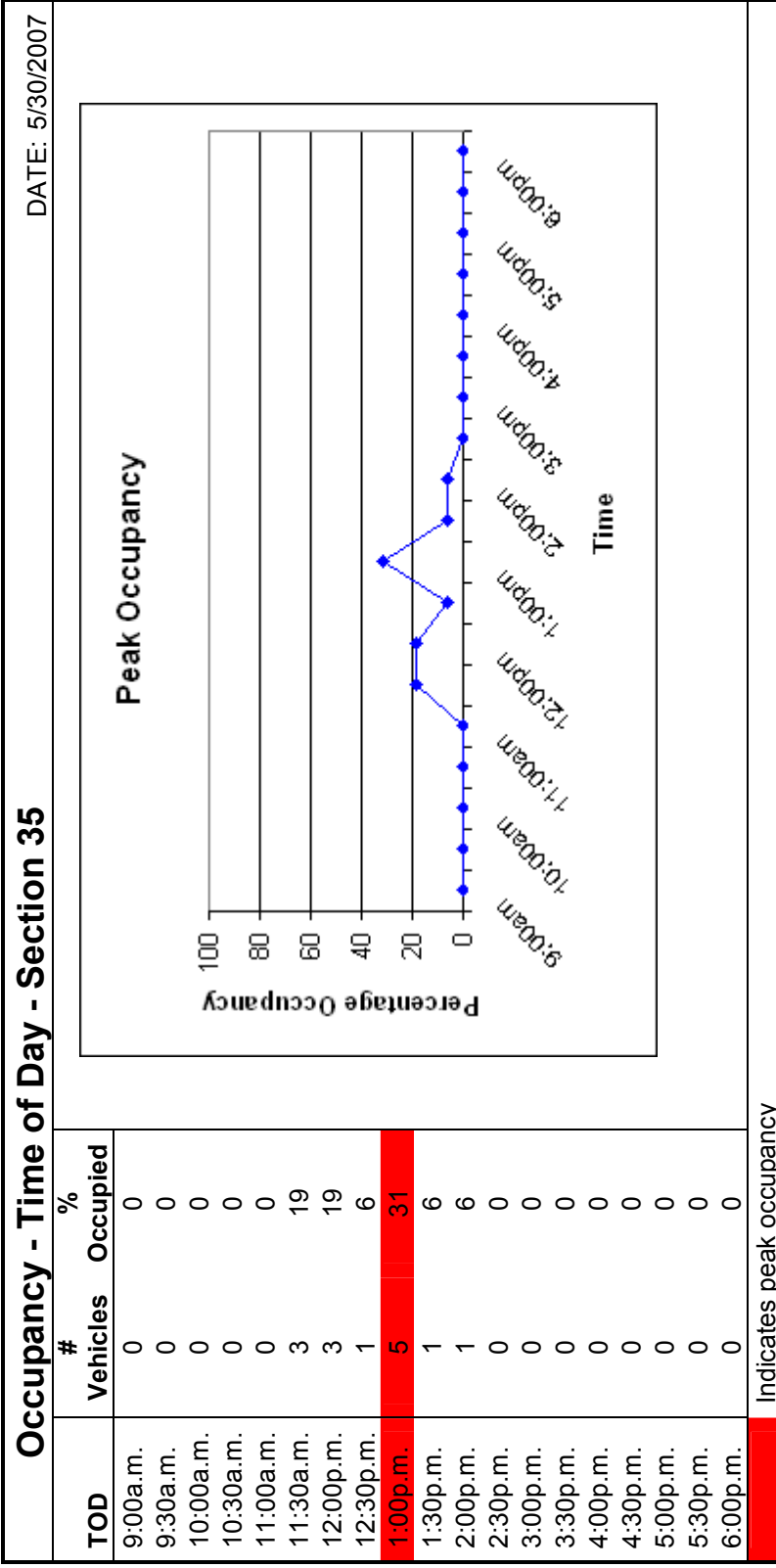
Total Spaces: 3
 Meter types: 3-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 3*9 = 27space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	11	65	5.5
1.00	0	0	0
1.50	2	12	3
2.00	3	18	6
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
6.00	1	6	6
Total	17		20.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (20.5/27)*100 = 76%

Turn over = Tot. vehicles/ Tot. spaces = 17/3 = 5.6

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 20.5/17 = 1.21 hrs



Analysis - On-Street Section 35

DATE: 5/30/2007

Total Spaces: 16
 Meter types: 16-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 16*9 = 144space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	6	67	3
1.00	2	22	2
1.50	0	0	0
2.00	1	11	2
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	9		7

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (7/144)*100 = 5%

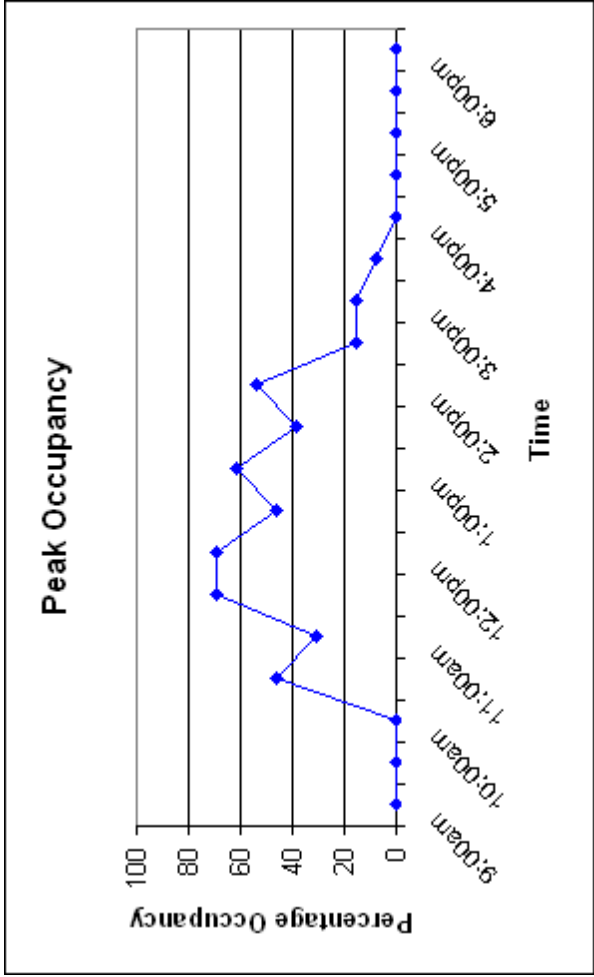
Turn over = Tot. vehicles/ Tot. spaces = 9/16 = 0.56

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 7/9 = 0.78hrs

Occupancy - Time of Day - Section 36

DATE: 5/30/2007

TOD	# Vehicles	% Occupied
9:00a.m.	0	0
9:30a.m.	0	0
10:00a.m.	0	0
10:30a.m.	6	46
11:00a.m.	4	31
11:30a.m.	9	69
12:00p.m.	9	69
12:30p.m.	6	46
1:00p.m.	8	62
1:30p.m.	5	38
2:00p.m.	7	54
2:30p.m.	2	15
3:00p.m.	2	15
3:30p.m.	1	8
4:00p.m.	0	0
4:30p.m.	0	0
5:00p.m.	0	0
5:30p.m.	0	0
6:00p.m.	0	0



Indicates peak occupancy

Analysis - On-Street Section 36

DATE: 5/30/2007

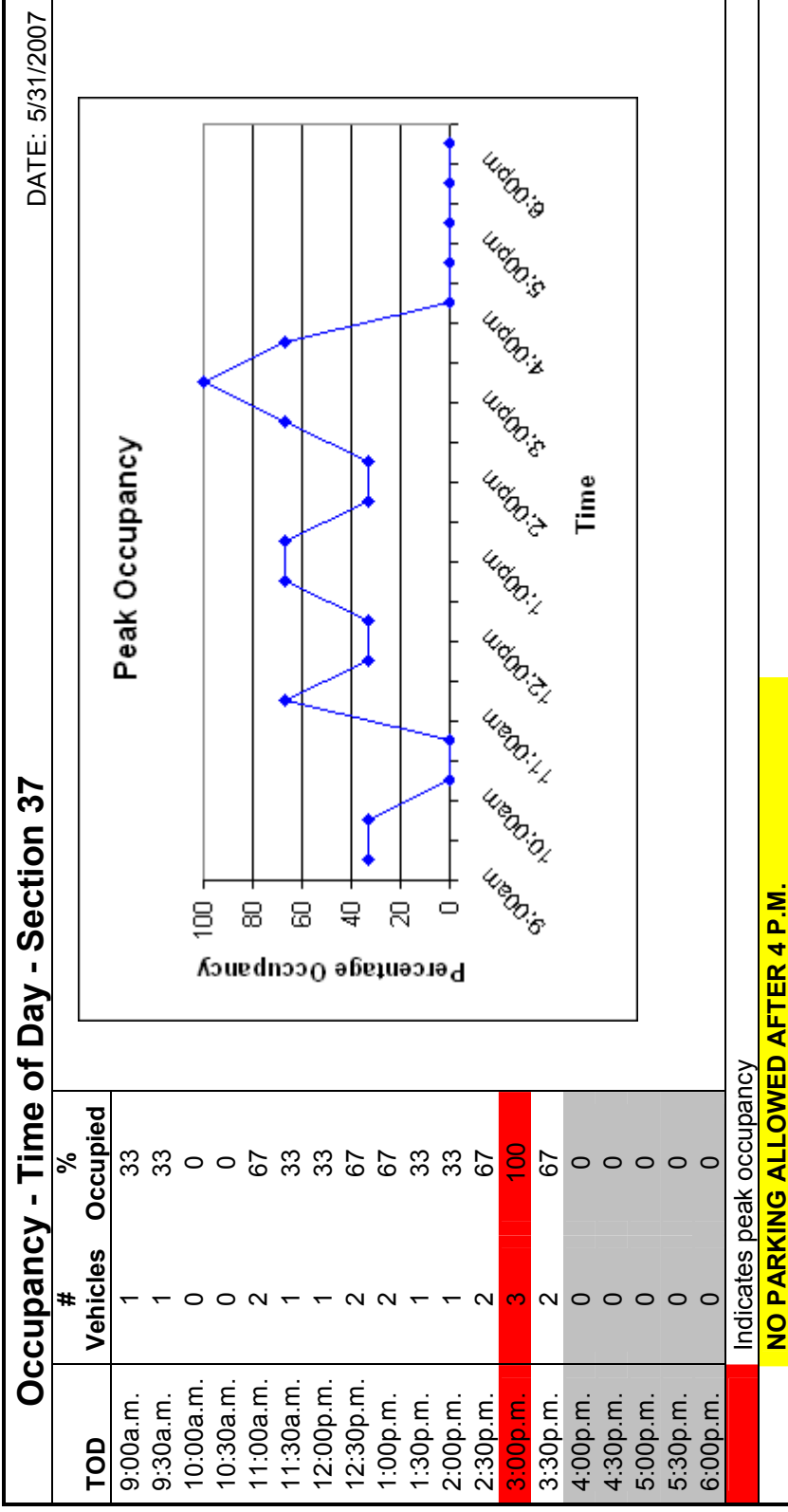
Total Spaces: 13
 Meter types: 13-1hr
 Operational Hrs: 9a.m.-6p.m. (9hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 13*9 = 117space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	18	53	9
1.00	11	32	11
1.50	2	6	3
2.00	2	6	4
2.50	1	3	2.5
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	34		29.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (29.5/117)*100 = 25%

Turn over = Tot. vehicles/ Tot. spaces = 34/13 = 2.62

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 29.5/34 = 0.87hrs



Analysis - On-Street Section 37

DATE: 5/31/2007

Total Spaces: 3
 Meter types: 3-1hr
 Operational Hrs: 9a.m.-4p.m. (7hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 3*7 = 21space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	6	50	3
1.00	5	42	5
1.50	1	8	1.5
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	0	0	0
5.50	0	0	0
Total	12		9.5

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (9.5/21)*100 = 45%

Turn over = Tot. vehicles/ Tot. spaces = 12/3 = 4.0

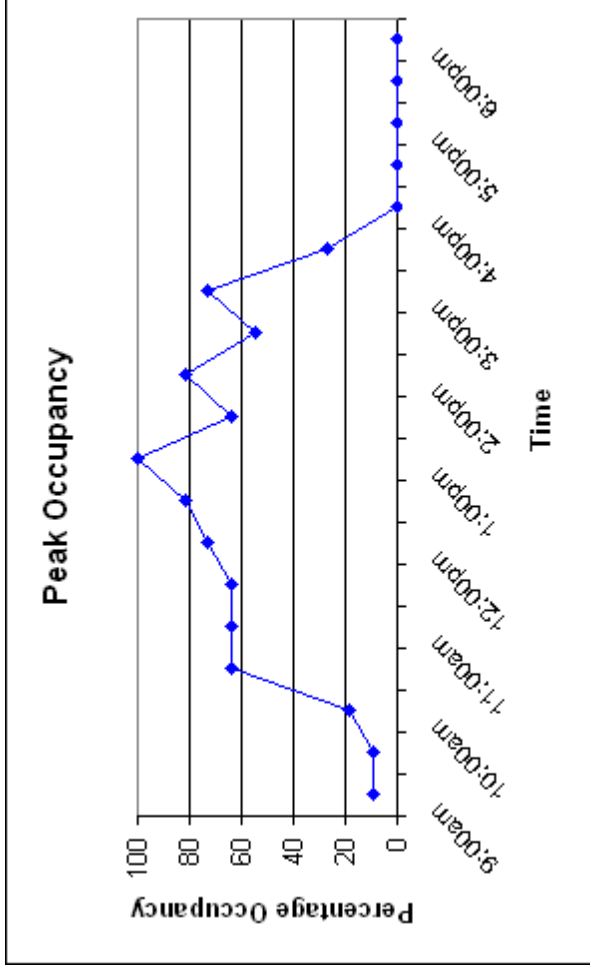
Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 9.5/12 = 0.79hrs

NO PARKING ALLOWED AFTER 4 P.M.

Occupancy - Time of Day - Section 38

DATE: 5/30/2007

TOD	# Vehicles	% Occupied
9:00a.m.	1	9
9:30a.m.	1	9
10:00a.m.	2	18
10:30a.m.	7	64
11:00a.m.	7	64
11:30a.m.	7	64
12:00p.m.	8	73
12:30p.m.	9	82
1:00p.m.	11	100
1:30p.m.	7	64
2:00p.m.	9	82
2:30p.m.	6	55
3:00p.m.	8	73
3:30p.m.	3	27
4:00p.m.	0	0
4:30p.m.	0	0
5:00p.m.	0	0
5:30p.m.	0	0
6:00p.m.	0	0



Indicates peak occupancy

NO PARKING ALLOWED AFTER 4 P.M.

Analysis - On-Street Section 38

DATE: 5/30/2007

Total Spaces: 11
 Meter types: 11-1hr
 Operational Hrs: 9a.m.-6p.m. (7hrs)
 Total Availability= (Tot. spaces*Operational hrs)
 = 11*7 = 77space-hrs

Duration	# Vehicles	% of Vehicles	Space Hrs Occupied
0.50	34	64	17
1.00	12	23	12
1.50	6	11	9
2.00	0	0	0
2.50	0	0	0
3.00	0	0	0
3.50	0	0	0
4.00	0	0	0
4.50	0	0	0
5.00	1	2	5
5.50	0	0	0
Total	53		43

Avg. % occupancy = (Tot. space-hrs Occupied/ Availability)*100
 = (43/77)*100 = 56%

Turn over = Tot. vehicles/ Tot. spaces = 53/11 = 4.82

Avg. Duration = Tot. space-hrs Occupied/ Tot. vehicles
 = 43/53 = 0.81hrs

NO PARKING ALLOWED AFTER 4 P.M.

Appendix C: Private Facilities Occupancy Analysis (Weekday)

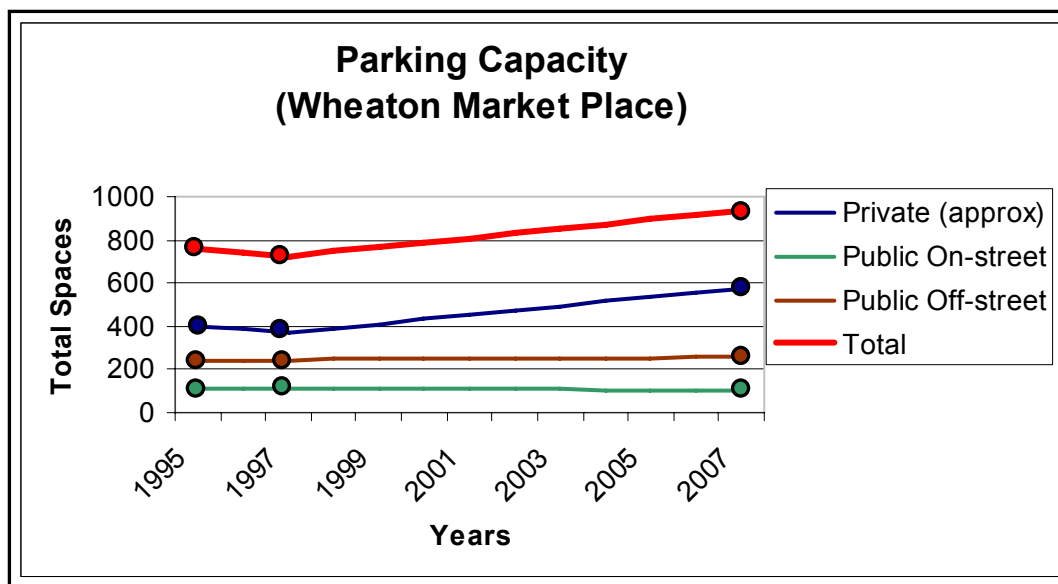
Date: 12/13/2007						
Property #	Location	Time	Capacity	Occupied	% Occupancy	Type
1188512	Veirs Mill & University, BB&T Bank	10:30 a.m.	44	19	43.18%	Customer
999999	Veirs Mill & University, Ambassador Apartments, outside	10:35 a.m.	18	9	50.00%	Tenant
Adjacent 999999	Veirs Mill & University, Ambassador Apartments, inside	10:40 a.m.	115	23	20.00%	Tenant
1188534	SunTrust at University Boulevard	10:45 a.m.	32	6	18.75%	Customer
1187052	Viers Mill at Dae Sung Kwan Restaurant	10:50 a.m.	55	13	23.64%	Customer
951668, 951657	University & Westfield Building	11:00 a.m.	297	284	95.62%	Customer & unpaid
1187324, 2530306	University at Mattress Warehouse	10:35 a.m.	5	2	40.00%	Customer
3582392	University & Duron Paints	10:40 a.m.	4	1	25.00%	Customer
1177600	Grandview & Georgia	10:50 a.m.	57	15	26.32%	Customer
1188124	University & Grandview Hollywood East building	10:55 a.m.	10	5	50.00%	Customer
1188170	University & Grandview Bank of America	11:00 a.m.	78	35	44.87%	Customer
1185198, 1179905	Grandview & Georgia	1:30 a.m.	150	135	90.00%	Reserved
1869683	Georgia & Blue Ridge BB&T Bank	1:40 a.m.	215	125	58.14%	Reserved
2345046	Hickerson & Elkin	1:55 a.m.	96	35	36.46%	4 Reserved/ Customer & unpaid
99999	University Boulevard	1:30 p.m.	34	20	58.82%	Customer
951203	Hickerson & Elkin	1:35 p.m.	41	20	48.78%	Customer
2799940	Elkin & University	1:40 p.m.	49	16	32.65%	Reserved
1268751	Price & Metro	1:45 p.m.	29	13	44.83%	
1268751	Price & Metro at Safeway	1:55 p.m.	137	97	70.80%	
Total			1477	879	59.51%	

Data unavailable

Appendix D: Study Comparison

Inventory Comparison (Wheaton Business District)		
Category	1987	2007
Private	3000	2074 (approximately)
Public On-street	433	397
Public Off-street	539	1066
Total	3972	3537

Inventory Comparison (Wheaton Market Place)				
Category	1995	1996	2007	% Increase since 1996
Private (approx)	400	369	577	56.37%
Public On-street	112	112	103	-8.04%
Public Off-street	245	245	256	4.49%
Total	757	726	936	28.93%



Occupancy variation over years (Wheaton Market Place)			
Category	Public On-street - Weekday		
	1995 % Occupancy	1997 % Occupancy	2007 % Occupancy
9:00 a.m.	24%	21%	17%
9:30 a.m.			24%
10:00 a.m.	40%	46%	32%
10:30 a.m.			41%
11:00 a.m.	48%	41%	50%
11:30 a.m.			61%
12:00 p.m.	58%	61%	59%
12:30 p.m.			61%
1:00 p.m.	58%	62%	58%
1:30 p.m.			58%
2:00 p.m.	48%	58%	64%
2:30 p.m.			45%
3:00 p.m.	45%	44%	50%
3:30 p.m.			46%
4:00 p.m.	38%	53%	38%
4:30 p.m.			35%
5:00 p.m.			50%
5:30 p.m.			43%
6:00 p.m.			37%
Indicates peak occupancy			

Note: ATCS has used this format to show the occupancy only to match the format of the previous studies provided by the county. The reader should be informed that, this method of representing information is extremely generic and does not provide details that would enable the county to identify the parking facilities operating at capacity. For example, though the % Occupancy always appears to be less than 50%, in reality some on-street sections are 100% occupied most of the day, where as some sections are totally unoccupied the whole day.

Indicates peak occupancy

Occupancy variation over years (Wheaton Market Place)			
Category	Public Off-street - Weekday		
	1995 % Occupancy	1997 % Occupancy	2007 % Occupancy
9:00 a.m.	40%	29%	39%
9:30 a.m.			53%
10:00 a.m.	59%	53%	57%
10:30 a.m.			55%
11:00 a.m.	67%	67%	55%
11:30 a.m.			63%
12:00 p.m.	73%	73%	72%
12:30 p.m.			67%
1:00 p.m.	77%	77%	65%
1:30 p.m.			61%
2:00 p.m.	71%	79%	69%
2:30 p.m.			61%
3:00 p.m.	71%	76%	61%
3:30 p.m.			57%
4:00 p.m.	70%	72%	65%
4:30 p.m.			61%
5:00 p.m.			66%
5:30 p.m.			59%
6:00 p.m.			59%
Indicates peak occupancy			

Note: Off-street parking includes lots and garages. Peak occupancy of lots 13 and 34 is close to practical capacity of 85%. Generic representation in this table does not reflect these statistics, as lot 17 and garage 45 with lower occupancies have been included in the average. ATCS recommends the reader to view the detailed analysis for each lot and garage in Appendix B for more accurate information.

Indicates peak occupancy

Occupancy variation over years (Wheaton Market Place)			
Category	Public On-street - Weekend		
	1995 % Occupancy	1997 % Occupancy	2007 % Occupancy
9:00 a.m.	43%	56%	27%
10:00 a.m.	60%	79%	52%
11:00 a.m.	70%	103%	65%
12:00 p.m.	82%	104%	76%
1:00 p.m.	78%	102%	77%
2:00 p.m.	78%	104%	56%
3:00 p.m.	65%	90%	54%
4:00 p.m.	72%	82%	50%
5:00 p.m.			58%
6:00 p.m.			50%

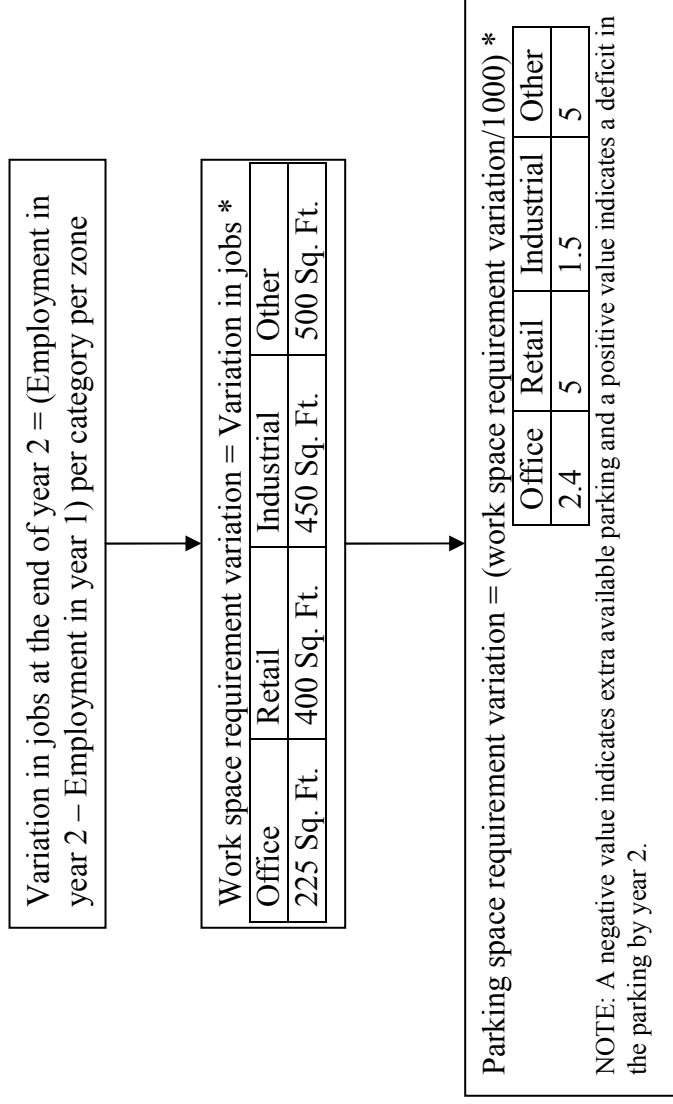
Indicates peak occupancy

Occupancy variation over years (Wheaton Market Place)			
Category	Public Off-street - Weekend		
	1995 % Occupancy	1997 % Occupancy	2007 % Occupancy
9:00 a.m.	40%	53%	36%
10:00 a.m.	65%	73%	55%
11:00 a.m.	80%	91%	64%
12:00 p.m.	79%	99%	79%
1:00 p.m.	83%	99%	85%
2:00 p.m.	69%	96%	77%
3:00 p.m.	75%	85%	65%
4:00 p.m.	62%	79%	58%
5:00 p.m.			55%
6:00 p.m.			46%

Indicates peak occupancy

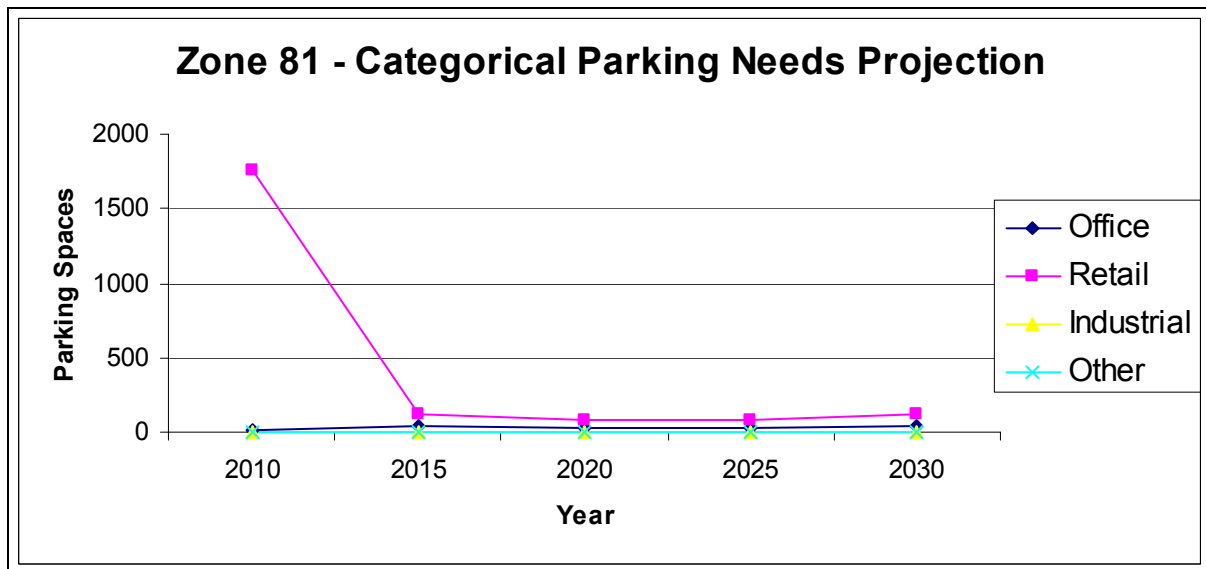
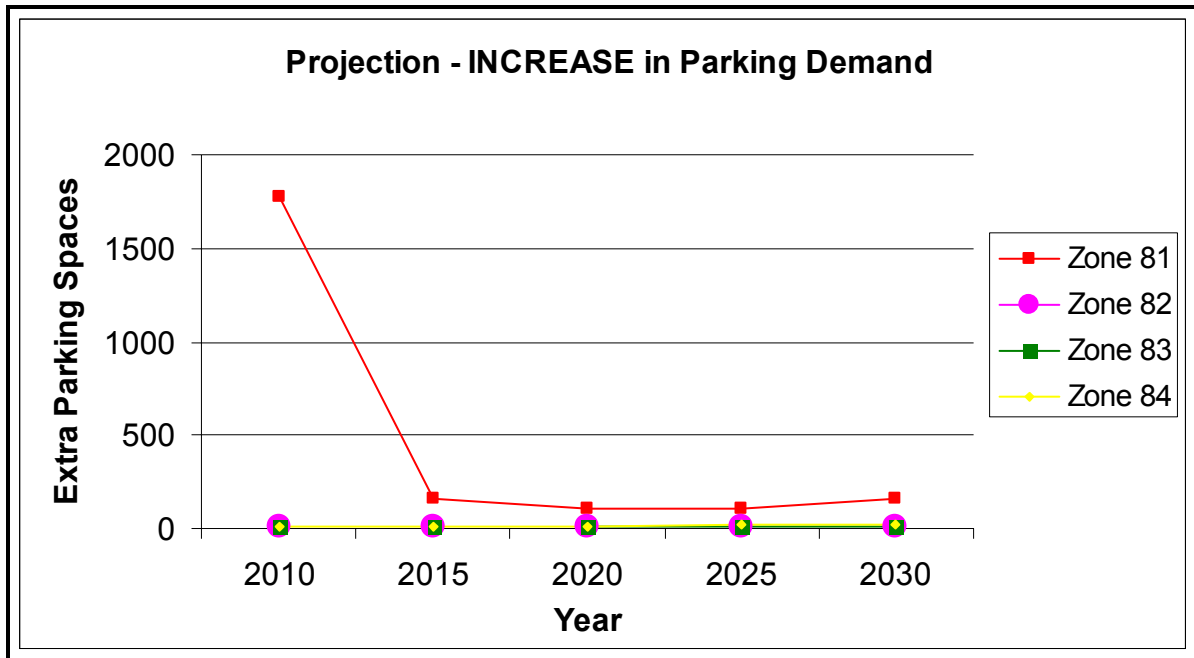
Appendix E: Parking Demand Projection

Projection flowchart:



Traffic Zone	2005 At-Place Employment				Total	2010 At-Place Employment				Total	2015 At-Place Employment				Total
	Office	Retail	Industrial	Other		Office	Retail	Industrial	Other		Office	Retail	Industrial	Other	
81	1,360	4,394	27	35	5,816	1,395	5,272	27	35	6,729	1,473	5,332	28	36	6,869
82	152	210	247	115	724	153	211	248	116	728	154	212	249	117	732
83	760	339	9	43	1,151	764	341	9	43	1,157	768	343	9	43	1,163
84	635	401	3	25	1,064	641	404	3	25	1,073	647	407	3	25	1,082
Source:	The Maryland-National Capital Park and Planning Commission - Montgomery Planning Department														
Traffic Zone	Increase in #jobs between 2005-2010				Total	Increase in #jobs between 2010-2015				Total	Increase in # jobs between 2015 and 2020				Total
	Office	Retail	Industrial	Other		Office	Retail	Industrial	Other		Office	Retail	Industrial	Other	
81	35	878	0	0	913	78	60	1	1	140	44	41	0	0	85
82	1	1	1	1	4	1	1	1	1	4	1	1	2	1	5
83	4	2	0	0	6	4	2	0	0	6	5	2	0	0	7
84	6	3	0	0	9	6	3	0	0	9	7	4	0	0	11
Traffic Zone	Office space Increase between 2005-2010				Total	Office space Increase between 2010-2015				Total	Office space Increase between 2015 - 2020				Total
	Office	Retail	Industrial	Other		Office	Retail	Industrial	Other		Office	Retail	Industrial	Other	
81	7,875	351,200	0	0		17,550	24,000	450	500		9,900	16,400	0	0	
82	225	400	450	500		225	400	450	500		225	400	900	500	
83	900	800	0	0		900	800	0	0		1,125	800	0	0	
84	1,350	1,200	0	0		1,350	1,200	0	0		1,575	1,600	0	0	
Source:	The Maryland-National Capital Park and Planning Commission - Montgomery Planning Department														
Traffic Zone	Parking spaces Increase between 2005-2010				Total	Parking spaces Increase between 2010-2015				Total	Parking spaces Increase between 2015- 2020				Total
	Office	Retail	Industrial	Other		Office	Retail	Industrial	Other		Office	Retail	Industrial	Other	
81	19	1756	0	0	1775	42	120	1	3	165	24	82	0	0	106
82	1	2	1	3	6	1	2	1	3	6	1	2	1	3	6
83	2	4	0	0	6	2	4	0	0	6	3	4	0	0	7
84	3	6	0		9	3	6	0		9	4	8	0		12
Source:	County Code, Division 59-E-3														

Traffic Zone	2020 At-Place Employment					2025 At-Place Employment					2030 At-Place Employment				
	Office	Retail	Industrial	Other	Total	Office	Retail	Industrial	Other	Total	Office	Retail	Industrial	Other	Total
81	1,517	5,373	28	36	6,954	1,566	5,415	28	36	7,045	1,640	5,474	29	37	7,180
82	155	213	251	118	737	156	215	253	119	743	158	217	256	120	751
83	773	345	9	43	1,170	780	348	9	43	1,180	789	352	9	43	1,193
84	654	411	3	25	1,093	663	417	3	25	1,108	676	425	3	25	1,129
Source:	The Maryland-National Capital Park and Planning Commission - Montgomery Planning Department														
Traffic Zone	Increase in # jobs between 2020 and 2025					Increase in # jobs between 2025 and 2030									
	Office	Retail	Industrial	Other	Total	Office	Retail	Industrial	Other	Total					
81	49	42	0	0	91	74	59	1	1	135					
82	1	2	2	1	6	2	2	3	1	8					
83	7	3	0	0	10	9	4	0	0	13					
84	9	6	0	0	15	13	8	0	0	21					
Traffic Zone	Office space Increase between 2020 - 2025					Office space Increase between 2025 - 2030									
	Office	Retail	Industrial	Other	Total	Office	Retail	Industrial	Other	Total					
81	11,025	16,800	0	0		16,650	23,600	450	500						
82	225	800	900	500		450	800	1,350	500						
83	1,575	1,200	0	0		2,025	1,600	0	0						
84	2,025	2,400	0	0		2,925	3,200	0	0						
Source:	The Maryland-National Capital Park and Planning Commission - Montgomery Planning Department														
Traffic Zone	Parking spaces Increase between 2020 - 2025					Parking spaces Increase between 2025 - 2030									
	Office	Retail	Industrial	Other	Total	Office	Retail	Industrial	Other	Total					
81	26	84	0	0	110	40	118	1	3	161					
82	1	4	1	3	8	1	4	2	3	10					
83	4	6	0	0	10	5	8	0	0	13					
84	5	12	0		17	7	16	0		23					
Source:	County Code, Division 59-E-3														



Appendix F: Excel Templates - Instructions

Purpose

The Parking Occupancy Survey Worksheet can be used to serve as a template to collect and analyze parking occupancy data from the field. The worksheet can be edited and updated to input new parking occupancy data, or used as a template to set-up a new study for another parking district. The important feature of this worksheet is that the analysis is automatically done with just input data from the field.

Background

Occupancy data collected from the field shall be inputted onto on the spreadsheet tab labeled, "Survey Data." (Spreadsheet tabs are located on the lower left bottom of the window)

The three rows located at the top left of the spreadsheet titled: "Meter #," "Meter Color," and "Meter Type," are the rows used to categorize each individual parking space.

Occupancy Survey: _____											
LOCATION: _____										Date: _____	
										Field Work Performed By: _____	
Meter #											
Meter Color											
Meter Type											
9:00 a.m.											
9:30 a.m.											
10:00 a.m.											
10:30 a.m.											
11:00 a.m.											
11:30 a.m.											
12:00 p.m.											
12:30 p.m.											
1:00 p.m.											
1:30 p.m.											
2:00 p.m.											
2:30 p.m.											
3:00 p.m.											
3:30 p.m.											
4:00 p.m.											
4:30 p.m.											
5:00 p.m.											
5:30 p.m.											
6:00 p.m.											

(") Indicates Same Vehicle As Previously Recorded

Page 1 of 1

The "Meter #" category on the spreadsheet is the area where the reference number of a given parking space is inputted. The input data can be a number, letter, or a combination of both.

The "Meter Color" category references the color of the meter. If a parking space does not have a meter color, the user can type in "N/A", to note meter color not available, or leave the cell blank. (This will not affect the computation of the worksheet)

The "Meter Type" category, references the meter's parking time, or any unique parking type. The cell can only accept the following meter type input: 30 MIN; 1 HOUR; 2 HOURS; 3 HOURS; 9 HOURS; 12 HOURS; 15 HOURS; HC (Handicap Parking Space); and last, MC (Motorcycle Parking Space). The input data for the meter type can be typed in or selected from a pull down menu when using a mouse.

Meter #	1	2	3
Meter Color	BLUE	N/A	BLUE
Meter Type	1 HOUR	HC	
9:00 a.m.		30 MIN	
9:30 a.m.		1 HOUR	
10:00 a.m.		2 HOUR	
10:30 a.m.		3 HOUR	
11:00 a.m.		9 HOUR	
		12 HOUR	
		15 HOUR	
		HC	

Data Input

The data from the field should be typed in its corresponding cell on the spreadsheet with respect to the time it was collected. Every new vehicle is indicated by an [x] and **not** by the license plate number recorded during the survey. A vehicle that remains in parking space even during the next time slot is represented by ["]. These symbols can be typed or selected from the pre-defined list for each cell.

Meter #	19	21
Meter Color	GRAY	GRAY
Meter Type	3 HOUR	3 HOUR
9:00 a.m.		
9:30 a.m.		
10:00 a.m.	MXJ930	
10:30 a.m.	" "	
11:00 a.m.	" "	
11:30 a.m.		
12:00 p.m.		
12:30 p.m.		
1:00 p.m.		
1:30 p.m.	95132	
2:00 p.m.	" "	
2:30 p.m.		
3:00 p.m.		
3:30 p.m.		
4:00 p.m.	30642	
4:30 p.m.		
5:00 p.m.		
5:30 p.m.		
6:00 p.m.		

Data from the Field



Meter #	19	21
Meter Color	GRAY	GRAY
Meter Type	3 HOUR	3 HOUR
9:00 a.m.		
9:30 a.m.		
10:00 a.m.	X	
10:30 a.m.	"	
11:00 a.m.	"	
11:30 a.m.		
12:00 p.m.		
12:30 p.m.		
1:00 p.m.		
1:30 p.m.	X	
2:00 p.m.	"	
2:30 p.m.		
3:00 p.m.		
3:30 p.m.		
4:00 p.m.	X	
4:30 p.m.	"	
5:00 p.m.		
5:30 p.m.		
6:00 p.m.		

Data Typed into Worksheet

Quality Check

A row titled "QA/QC," below the data table that runs along all the parking spaces, indicates the validity of the data. Cell below a column corresponding to each parking space holds one of the following values.

"Complete" - All data required is accounted for

"No Ref" – Need to define the parking space meter type and meter number

"No Type" - Need to define the parking space meter type

"No #" – Need to define the parking space number

"Blank" – Lack of data or an empty space

The Q/A & Q/C row can be used to identify any format mistakes made while entering the data into the worksheet. Users should note that this check will not determine the accuracy of the survey.

Meter #	1		3		5
Meter Color	BLUE	BLUE	BLUE	BLUE	BLUE
Meter Type	1 HOUR			1 HOUR	1 HOUR
9:00 a.m.	X	X	X	X	
9:30 a.m.					
10:00 a.m.	X	X	X	X	
10:30 a.m.	"	"	"	"	
11:00 a.m.	"	"	"	"	
11:30 a.m.					
12:00 p.m.	X	X	X	X	
12:30 p.m.	X	X	X	X	
1:00 p.m.	X	X	X	X	
1:30 p.m.					
2:00 p.m.					
2:30 p.m.					
3:00 p.m.					
3:30 p.m.					
4:00 p.m.					
4:30 p.m.					
5:00 p.m.					
5:30 p.m.					
6:00 p.m.					

(") Indicates Same Vehicle As F

QA/QC	4	Complete	No Ref	No Type	No #	No Data
-------	---	----------	--------	---------	------	---------

Analysis

All the analyses for the data are done automatically by the worksheet. Results can be viewed under the tabs titled, "Occupancy – TOD" and "Analysis".

"Occupancy - TOD" will show the percentage occupancy versus time of day and "Analysis" will show the vehicle duration breakdown, average percent occupancy, turnover rate, and average duration.

Other Uses

The spreadsheet can be edited to input new parking occupancy data, to add and remove parking spaces, and to even create a new study.

Appendix G: Access Database - Instructions

Purpose

A user-friendly Access application was created to present the data in more organized manner. Some of most powerful aspects of an access application are its ability to link to GIS data directly which serves as central hub of data, protecting data consistency. This application enables only data viewing that preserves data accuracy and accountability.

Set-up

Copy the folder named “Wheaton Parking” from the CD provided to the county and paste the folder in the C drive.

Make sure that Microsoft Access 2000 or 2003 is installed on your machine.

Directions

- Open folder “Wheaton Parking” under C drive
- Open the file named “Wheaton Parking Study”
- If a **security warning** appears, click open or allow contents
- Main screen appears with Districts in Montgomery County as shown in Figure F.1



Figure F.1: Opening screen

- Click the location you wish to view or click '**quit application**' to close the application
- After a location is selected, another window opens showing various types of parking facilities as shown in Figure F.2. Click on the facility type you wish to view.



Figure F.2: Screen of parking facility types

- After choosing a facility type, i.e. LOTS, the screen shown in Figure F.3 appears. The parking study results can be viewed on this screen after choosing the 'Lot number and name' you are interested in. A pre-defined list is available next to 'Lot ID'. See the cursor in Figure F.3 if you are unable to locate the list box.

Lot_General

 **WHEATON PARKING DISTRICT**

PARKING LOT DATA

Lot ID: URL: Address:

Rate: Days of Operation: Hours of Operation: Type of Operation:

Total Spaces: 0	30Mins Spaces: 0	30Mins %Occupancy: 0	30Mins Turnover: 0
Lot Capacity: 0 (Space-Hrs)	1Hr Spaces: 0	1Hr %Occupancy: 0	1Hr Turnover: 0
Current Usage: 0 (Space-Hrs)	2Hr Spaces: 0	2Hr %Occupancy: 0	2Hr Turnover: 0
% Occupancy: 0	3Hr Spaces: 0	3Hr %Occupancy: 0	3Hr Turnover: 0
Turn Over: 0	9Hr Spaces: 0	9Hr %Occupancy: 0	9Hr Turnover: 0
Average Duration: 0 (Hrs)	12Hr Spaces: 0	12Hr %Occupancy: 0	12Hr Turnover: 0
	Handicap Spaces: 0	Handicap %Occupancy: 0	Handicap Turnover: 0
	Mtr Cycle Spaces: 0	Mtr Cycle %Occupancy: 0	Mtr Cycle Turnover: 0
	Other Spaces: 0	Other %Occupancy: 0	Other Turnover: 0

Pavement Condition: Markings Condition: Date of Survey:

Record: 1 of 23

Figure F.3: Parking lots screen

- Scroll through the list to find the parking lot, on-street section, or garage you are looking for and click on the 'name' as shown in Figure F.4. The screen gets automatically populated with relevant data. If parking facilities out of the study area are chosen, the screen remains unpopulated.

Lot_General

WHEATON PARKING DISTRICT

PARKING LOT DATA

Lot ID: LOT 13 MARKETPLACE LOT **URL:** <http://www.dpwt.com/parking/lot13.ht> **Address:**

Rate: **Days of Operation:** **Hours of Operation:** **Type of Operation:**

Total Spaces: 162	30Mins Spaces: 0	30Mins %Occupancy: 0	30Mins Turnover: 0
Lot Capacity (Space-Hrs): 1458	1Hr Spaces: 23	1Hr %Occupancy: 33	1Hr Turnover: 3.74
Current Usage (Space-Hrs): 902	2Hr Spaces: 101	2Hr %Occupancy: 60	2Hr Turnover: 4.27
% Occupancy: 62	3Hr Spaces: 0	3Hr %Occupancy: 0	3Hr Turnover: 0
Turn Over: 3.6	9Hr Spaces: 26	9Hr %Occupancy: 96	9Hr Turnover: 2.04
Average Duration (Hrs): 1.55	12Hr Spaces: 0	12Hr %Occupancy: 0	12Hr Turnover: 0
	Handicap Spaces: 8	Handicap %Occupancy: 94	Handicap Turnover: 1.63
	Mtr Cycle Spaces: 4	Mtr Cycle %Occupancy: 0	Mtr Cycle Turnover: 0
	Other Spaces: 0	Other %Occupancy: 0	Other Turnover: 0

Pavement Condition: **Markings Condition:** **Date of Survey:**

Record: of 23

Figure F.4: Screen with populated fields

- After selecting the ID of a parking facility from drop-down list, the user may choose any of the buttons at the bottom. From left to right the buttons are described as follows:

- Button 1: Parking Lot-specific information

Lot_Specific

WHEATON PARKING DISTRICT

LOTS DATA PER METER

Lot ID: LOT 13

Meter ID: HC

Parking Type: Lot

Meter Type: handicapped

Easting: 1297512.91025

Northing: 499730.74273

% Occupancy: 94

Notes: NO NUMBER

Record: 34 of 162 (Filtered)

Record: 3 of 23

Buttons: Lot Specific Information, View\ Edit Analysis, View GIS pictures, View Photos, View Videos, Return <<

Figure F.5

- Button 2: Occupancy survey and analysis information – Upon clicking this button, excel sheet of the corresponding parking facility appears. The tab labeled, “Survey Data” shows survey information, the “Occupancy –TOD” and “Analysis” tabs contain the analysis methodology and results. Changes made to these sheets are saved in C:\Wheaton Parking\ Analysis. Figure F.6 is a screen shot of the excel sheet.

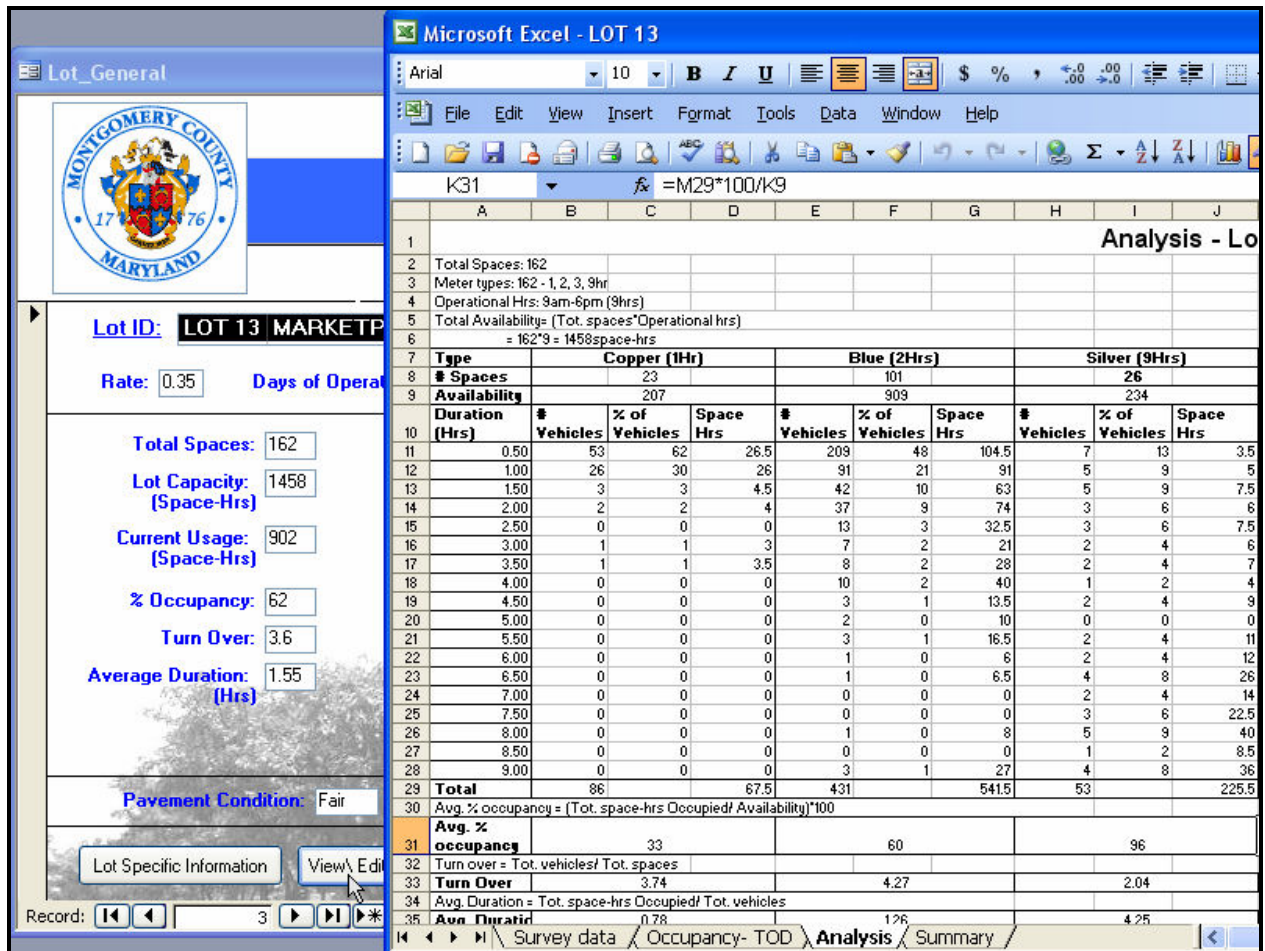


Figure F.6

Note: For this functionality to work, Microsoft Office Excel should already be installed on your computer.

- Button 3: GIS pictures provide visual understanding of the information. GIS snapshots of each facility based on 'Meter Type' and 'Occupancy' can be viewed as shown in Figure F.7.

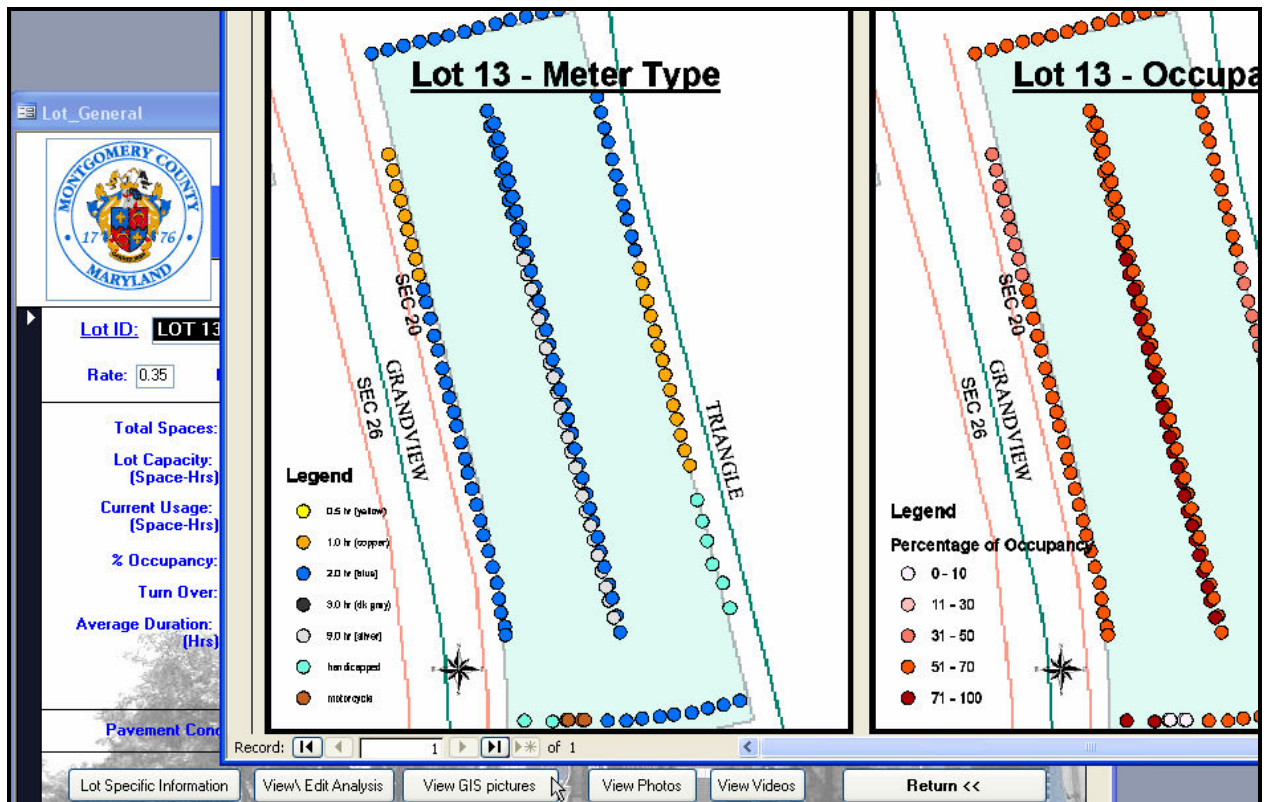


Figure F.7

- Button 4: Photos taken on site
- Button 5: Videos
- Button 6: Return – To go back to the screen with parking facility types shown in Figure F.2